INSTITUTE FOR HUMANE EDUCATION

THE SOLUTIONARY GUIDEBOOK

FOR EDUCATORS WHO WANT TO CHANGE THE WORLD

humaneeducation.org

CONTENTS

About the Institute for Humane Education

Preface

Part 1: Why & What

Why is it important to become a solutionary?

Why is it important to devise solutions that do the most good and least harm (are MOGO) for people, animals, and the environment?

Why is it important to make personal MOGO choices?

What comprises solutionary thinking and practice?

What is a solutionary solution?

Why is implementation so important?

What challenges might I face?

Part 3: Resources

Activities and lessons from the IHE website

Videos of note

Research, critical thinking, and systems thinking tools

Resources to implement solutions

Additional useful resources

Books of note

Glossary

Part 2: How

Getting Started

The Solutionary Process:

1. Cultivate compassion and increase students' Compassion Quotients
2. Learn about issues in your community and in the world
3. Identify a specific problem you care about solving
4. Connect with stakeholders and those working to solve the problem
5. Identify the causes of the problem from psychological factors, worldviews, and mindsets to systemic structures
6. Determine who and what is harmed by the problem, and who and what benefits
7. Research what has been done to solve the problem thus far
8. Devise solutions that address the causes of the problem, and which do the most good and least harm to people, animals, and the environment
9. Determine which solutions are most solutionary and most feasible for implementation
10. Create a plan to implement your solution
11. Implement your solution
12. Present your work
13. Assess, share, iterate
14. Celebrate

Examples and case studies of educators bringing solutionary practices to their students

ABOUT THE INSTITUTE FOR HUMANE EDUCATION

Founded in 1996, the Institute for Humane Education (IHE) is a nonprofit organization that educates people to create a world in which humans, animals, and nature can thrive.

THE INSTITUTE FOR HUMANE EDUCATION OFFERS:

- Online Master's and Doctoral Programs in Humane Education delivered in partnership with Antioch University and designed to prepare teachers and changemakers to educate about the interconnected issues of human rights, environmental ethics, and animal protection through a Solutionary Framework.

- Humane Education Resources and Training that provide opportunities for learning, professional development, free educational materials, and methodologies for integrating our Solutionary Framework into schools and communities and advancing the growing solutionary movement.

- High Impact Outreach through keynote addresses, books, workshops, TEDx talks, and consultation.

PREFACE

Welcome!

Thank you for your interest in educating students to be engaged, dedicated, and experienced solutionaries. We are so happy that you have downloaded The Solutionary Guidebook and are eager to support your efforts.

The primary audience for this guidebook is middle and high school classroom teachers, administrators, and curriculum coordinators. However, we believe that all educators working with people ages 9 and up can help their students become solutionaries.

If you identify as any of the following, we believe that you will find much useful information here:

- Educator of children ages 9 and up
- College professor
- Adult education teacher
- Homeschooling parent
- Workshop facilitator
- Changemaker/activist working to create a more just, humane, and sustainable world
- Camp counselor/Scout leader
- Nontraditional educator
- Faith-based educator
- Nonprofit educator
- Humane educator
- Environmental/sustainability educator
- Social justice educator
- Animal protection educator
- Educator offering Social-Emotional Learning (SEL), Problem-Based (or Project-Based) Learning (PBL), Experiential Education, Sustainability Education, Expeditionary Education, Character Education
- Mentor

Although this guidebook stands alone, we encourage you to read IHE President Zoe Weil's book, The World Becomes What We Teach: Educating a Generation of Solutionaries, which provides the vision upon which this guidebook is built. We also recommend that you watch her first TEDx Talk, The World Becomes What You Teach.

PREFACE

In the Resources section at the end of this guidebook, you'll find many links that will help you put the ideas you find here into practice more deeply. We have chosen not to provide too many of these resources in the body of the guidebook so that you can read it more easily and fluidly.

We are excited to hear about all of the ways this guidebook is used by teachers and students. Our free lesson plans, curricula, and issues guides on Pinterest, YouTube Solutionary Channel, Solutionary Teachers Facebook page, and other venues will provide opportunities for connecting with and learning from one another as together we educate the #SolutionaryGeneration. Please be in touch with us and share your stories and experiences!

What is a solutionary?

We have already used the word "solutionary" several times. What exactly is a solutionary?

A solutionary is someone who:
- makes compassionate and responsible choices
- identifies unsustainable, inhumane, and unjust systems
- brings critical, systems, strategic, and creative thinking to bear on solving problems
- develops systems-based solutions that do the most good and least harm to people, animals, and the environment

Educating others to be solutionaries begins with educators cultivating solutionary dispositions and practicing solutionary skills. We wouldn't teach math without proficiency in math, history without knowledge of history, or science without understanding the sciences.

So while this guidebook is written for you to bring solutionary thinking and action to those you teach, please practice along the way. You will want to develop the greatest level of expertise possible in order to help your students gain proficiency.

"...while this guidebook is written for you to bring solutionary thinking and action to those you teach, please practice along the way."

PREFACE

The Solutionary Framework is based on the belief that even our most intractable problems can be solved, and that schools are the perfect places for students to practice solving them.

While this book is not a comprehensive guide to solving all our problems, it offers a tested strategy for educators (and by "educators" we mean those who work in classrooms as well as those who educate in nonclassroom settings) who want to be part of the growing solutionary movement.

We at IHE have not developed solutions to poverty, pollution, climate change, racism, sexism, xenophobia, animal cruelty, etc., even though we regularly bring solutionary thinking to these issues and share ideas about them.

What we have done is develop a solutionary solution to a root system in need of change: schooling. Our solution is to educate young people to be solutionaries! We believe that the educational system underlies all other societal systems, and that if we educate young people to be solutionaries, they will be able and motivated to solve the problems we face. That is why we are working to help teachers, school administrators, and professors, as well as out-of-school educators, parents, changemakers, and mentors to educate others to be solutionaries. This guidebook is one way of putting our own solutionary solution into practice.

"What we have done is develop a solutionary solution to a root system in need of change: schooling."

The Solutionary Framework has four phases that can be brought to life through these steps:

- identify a problem to solve
- work in groups or individually to research the causes
- and manifestations of the problem
- apply critical, systems, strategic, and creative thinking in an effort to come up with a "solutionary solution" * to the problem
- design an action plan to implement the solution
- implement the solution (or at least part of it)
- share the solution in a public forum
- assess both achievements and challenges in order to learn from them and improve solutionary skills and actions going forward

*A "solutionary solution" addresses the causes of the problem and does the most good and the least harm to humans, nonhuman animals, and the natural world.

PART I: WHY & WHAT

Why is it important to be a solutionary?

Many things in the world are improving, and a healthy, just, humane world is possible.

When asked by IHE's President Zoe Weil what they thought were the biggest problems in the world, a group of 45 fifth and sixth graders at a school in Connecticut filled up a whiteboard. When asked if they thought we could solve the problems they listed, only five of them raised their hands. A group of teachers at a public academy for gifted 10th-12th graders was asked by Zoe at a professional development workshop to respond to this prompt:

"In 50 years, I want the world to be ... "

The first response was: "Still here." When asked whether others shared this thought, almost all the teachers and curriculum developers raised their hands. Most of them did not feel hopeful about the future.

If it is common for both children and teachers to feel somewhat (or very) hopeless about our prospects for the future, what impact does this feeling have on teaching, learning, educational goals, and educational outcomes? While hope is not a prerequisite for solutionary thinking and action, without hope it may take a special kind of discipline and integrity – for both teachers and students – to forge a solutionary practice. After all, why bother to work hard at solving complex problems if we don't believe they can be solved, and if the future is bleak no matter what we do?

What's ironic about the dread so many people feel about the future is that so much has changed for the better. Human life expectancy has increased almost everywhere. Extreme poverty has declined dramatically across the globe. The education of children – including girls – is nearly universal. Prejudices, while still pervasive, haven't stopped the inexorable movement toward greater social justice, and human rights for formerly disenfranchised people are now encoded in laws that most countries around the world abide by. Policies and legislation to protect animals and the environment continue to be developed and passed. Violence and warfare have declined.

"When asked if they thought we could solve the problems they listed, only five of them raised their hands."

PART I: WHY & WHAT

> **"...it's important to take note of the progress we have made, and study and understand the strategies that have led to progress..."**

It can be difficult to see these positive trends because the media bombard us with bad news (of which there is plenty). None of the successes above mean that we should relax, because, as we know, violence, injustice, prejudice, destruction, and cruelty to people and animals continue. Nonetheless, it's important to take note of the progress we have made, and study and understand the strategies that have led to progress so that we can take greater and lasting steps toward peace, sustainability, and a humane future.

MANY CURRENT PROBLEMS IN THE WORLD ARE POTENTIALLY CATASTROPHIC

Despite our achievements – and in large part because of achievements in resource extraction and energy use – we face looming potential catastrophes.

Climate change is an existential threat to much of life on Earth, and all evidence suggests we are in the midst of a great extinction. While estimates vary considerably, it is possible that half of all species on Earth may become extinct by the end of this century. Glaciers are receding, coral reefs are dying, and rainforests are being destroyed at an alarming rate. Efforts to reverse climate change have thus far not succeeded.

While violence has diminished and warfare has lessened, the potential of nuclear weapons being deployed poses a grave danger.

Overall, people may be living longer, healthier lives, but population growth coupled with poverty, inequity, pollution, resource extraction, and impacts on food and water availability may lead to a rise in conflict, greater xenophobia, and fear-based retaliation against perceived threats.

It's important to remember that things can be bad and better at the same time.

PART I: WHY & WHAT

WHY IS IT SO IMPORTANT TO EDUCATE STUDENTS TO BE SOLUTIONARIES?

Students of all ages who are educated to be solutionaries have the potential to use the knowledge, confidence, and skills they gain to:

- Accomplish meaningful goals that are personally rewarding and empowering; gain solutionary competencies that will serve them throughout their lives; and develop a portfolio of value for colleges and/or potential employers (good for young people)
- Apply academic skills and knowledge to real-world issues; bring critical, systems, strategic, and creative thinking to solving problems; and see the relevance of school to living a life of meaning and purpose (good for students, teachers, schools)
- Solve real-world problems (good for communities and the world)

CULTIVATING YOUR OWN SOLUTIONARY PRACTICE

As you cultivate your own solutionary practice, you will likely discover greater meaning, purpose, and joy in your own work and greater impact through your efforts both in and out of your teaching environment.

Not only do your students need you as their solutionary role model and guide, the world needs you to be a solutionary, too. While educating young people to be solutionaries is essential, our students will rightly note our hypocrisy if we don't strive to be the best solutionaries we can be in our own lives and work.

For all these reasons and many others, it's critically important that we all learn to be solutionaries and that we educate a #SolutionaryGeneration.

"As you cultivate a solutionary practice, you will likely discover greater meaning, purpose, and joy in your own work..."

PART I: WHY & WHAT

Why is it important to devise solutions that do the most good and the least harm (are MOGO) for people, animals, and the environment?

We are sometimes asked what makes our comprehensive humane education approach and solutionary framework different from other initiatives focused on solving real-world problems.

There are two primary differences. Our approach ensures that teachers and students:

- understand the causes of the problem(s) they're addressing and develop root and systemic solutions.
- learn that to be truly solutionary, a solution must avoid unintended negative consequences that may harm one group while helping another.

(Later in this section, we'll give examples and go into more detail about what constitutes a "solutionary solution.")

Our guiding philosophy at the Institute for Humane Education (IHE) includes the "MOGO" principle. MOGO is short for "most good." Through our actions, we strive to live and educate in ways that result in doing the most good and least harm to people, animals, and the environment.

You may have noticed our inclusion of nonhuman animals in the MOGO principle. Many programs that seek to help students solve global problems leave out animals – except perhaps in the context of endangered species and/or megafauna like whales and elephants, who capture our attention, and/or beloved companion animals like dogs and cats.

To be a solutionary, however, we believe that it's important to develop solutions that don't cause suffering and harm to any sentient beings, not just to the animals we happen to like.

"Through our actions, we strive to live and educate in ways that result in doing the most good and least harm..."

PART I: WHY & WHAT

Most people believe animals should be protected from abuse. And yet, animal cruelty, while decried by almost everyone, is routine and systemic, albeit largely hidden from view. In fact, our food, clothing, product testing, wildlife management, entertainment, and other systems commonly harm animals in ways that would be illegal if perpetrated on dogs, cats, or pet birds.

FOR EXAMPLE, IT IS LEGAL AND ROUTINE TO:

- castrate farmed animals without painkillers or anesthesia.
- brand and dehorn cattle without painkillers or anesthesia.
- cut off half of chickens' and turkeys' sensitive beaks without painkillers or anesthesia.
- confine pigs so tightly they are unable to move.
- crowd chickens and turkeys into spaces so small they can't stretch a wing.
- remove calves from their mothers on their first day of life to take the milk their mothers produce and use it for human consumption.
- confine veal calves in stalls so small they cannot move for the duration of their lives.
- put painful irritants into the eyes of rabbits, without painkillers, to test household products and cosmetics.
- smear caustic substances onto the abraded skin of animals in testing labs without painkillers.
- force-feed chemicals to animals in laboratories in quantities meant to kill them.
- whip and beat into submission animals used in entertainment.
- hook and drag fish by their sensitive mouths for miles and then suffocate them through long-line fishing practices.
- catch "nontarget" sea animals, including marine mammals
- and turtles, in the nets of commercial fishing vessels,
- often causing their deaths through entanglement and/or
- handling.
- poison wildlife with toxins that result in prolonged and
- painful deaths.
- tightly confine wild fur-bearing animals in cages and then
- anally electrocute them to take their fur.
- trap animals by their legs and have them endure pain and
- exposure before killing them for their pelts.

"...we believe that it's important to develop solutions that don't cause suffering and harm to any sentient beings, not just to the animals we happen to like."
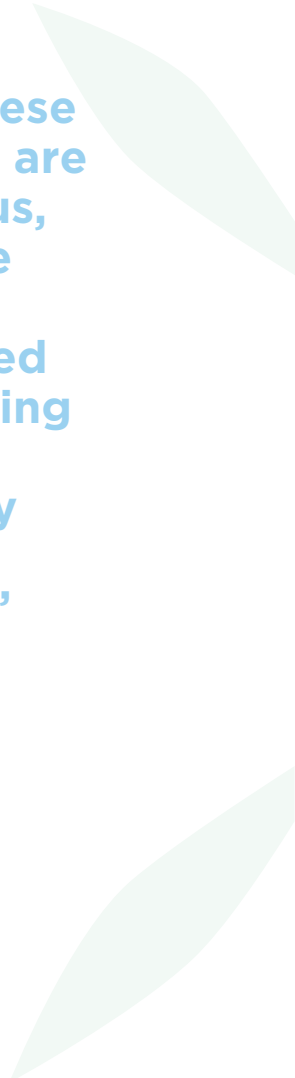
PART I: WHY & WHAT

All of these practices are ubiquitous, and some are so normalized that reading about them may not elicit concern. Yet, if these practices were perpetrated on those animals we consider pets, we would likely find them horrifying (and, as mentioned above, illegal).

In our goal of building a more humane and just world, we believe that considering the suffering of nonhuman animals is essential. While many programs may consider issues related to animal species (e.g., threatened or endangered species or impacts of introduced species on an ecosystem), we think that addressing the plight of individual animals matters, too.

Thus, to be solutionary, a solution must strive to do the most good and least harm to nonhuman animals in addition to people and the environment.

It might seem that most issues are largely separable, so there's not much need to take into consideration people, animals, and the environment when addressing a problem. Sometimes, that's the case. For example, if a group of students wants to address the issue of prejudicial disciplinary policies in their school, their social justice efforts may not connect to other species or ecosystems.

More often, however, if we look carefully, we will see connections between issues and groups of stakeholders that first appeared invisible to us. See the two examples on the next page.

"All of these practices are ubiquitous, and some are so normalized that reading about them may not elicit concern."

PART I: WHY & WHAT

THE ISSUE OF AN ENDANGERED SPECIES

Let's consider the problem of a species becoming endangered because of habitat destruction, such as the Northern Spotted Owl in the Pacific Northwest. U.S. laws such as the 1973 Endangered Species Act were invoked to protect the habitat where the animal lives. In the case of the Northern Spotted Owl, the Endangered Species Act was used to prevent the logging of old growth forests. Most animal and environmental advocates did not consider the economic hardship that would result when an entire industry that employs a significant portion of a community suddenly became illegal. The solution did not recognize the connections between, nor take into consideration, all the stakeholders. To be truly solutionary, the solution would need to propose answers to the unintended consequence of job losses and economic instability in a community.

THE ISSUE OF HUNGER

In addressing the problem of hunger, some individuals and groups have advocated providing livestock to people in other countries who are living in poverty. The thinking behind this solution is that the livestock will produce food (eggs, milk, meat) and provide a continued source of nourishment because the animals will reproduce. What is not considered is whether the recipients will have the means to provide proper care, housing, and food for the livestock; whether the livestock themselves will suffer and die; whether the environment can sustain the livestock; whether the livestock will cause environmental damage in regions that aren't conducive to animal husbandry; whether the feed necessary for the livestock will siphon off potentially more efficient means for feeding the community, etc. Without considering all stakeholders – including the individual animals, the environment, and the long-term viability to communities – the solution may not actually be solutionary.

Most problems do not occur in isolation. Learning to take into consideration all who are affected by the problem and/or its potential solution enables solutionaries to devise approaches and ideas that can largely benefit everyone and avoid potential unintended negative consequences.

It is not always possible to avoid some negative impacts. This is why the MOGO principle asks us to strive to do the most good and least harm, rather than all good and no harm.

> "What is not considered is whether the recipients will have the means to provide proper care, housing, and food for the livestock..."

PART I: WHY & WHAT

Why is it important to make personal MOGO choices?

At the beginning of this guidebook, we shared attributes of a solutionary. Among these is the commitment to make compassionate and responsible choices that do the most good and least harm to people, animals, and the environment.
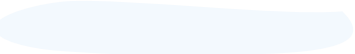
Why is it important that solutionaries make MOGO choices in their personal lives, as well as cultivate virtues such as kindness and compassion? After all, if the goal is to produce solutionary thinkers who develop and implement solutionary solutions in the world, why bother focusing on personal choice at all?

THERE ARE MANY REASONS!

- Being humane – which, according to Webster's Collegiate Dictionary, includes "having what are considered the best qualities of human beings" – is inherently positive. Cultivating virtues such as kindness and compassion improves our relationships; makes successful collaboration more likely; builds bridges of understanding; enables us to see others' perspectives and take them into consideration; and creates happy, healthy, thriving cultures in classrooms, schools, neighborhoods, and communities. Most teachers want their classrooms to be places where all are treated respectfully, where empathy is the norm, and where children and adolescents feel good about themselves and compassionate toward others.

- Practicing kindness in a globalized world demands additional effort. Kindness in a global economy requires considering the impacts of our everyday choices, since what we eat, wear, and buy can leave a trail of hidden sorrow and harm. Making conscious and conscientious choices will not, by itself, solve the problems of the world, but it is important anyway. While individual choices may not result in immediate, long-term change, the collective choices of individuals lead to innovations, social businesses, legislation, and policy changes that, over time, supplant destructive systems.

> "Most teachers want their classrooms to be places where all are treated respectfully, where empathy is the norm…"

- Dedication to making conscious and conscientious choices based on our values enables us to identify the challenges in doing so. That, in turn, spurs the creation of new and better systems that make living humanely and sustainably easier for everyone, including for those who cannot readily make different choices in their lives. It also gives us a lesson in empathy, as we realize how difficult making even small personal changes can be.

- Making choices inconsistent with our values gives everyone we meet (and potentially influence) an implicit pass on trying to make more sustainable and humane choices themselves, because if we don't live according to our principles, why should they?

- Taking responsibility for living with integrity also leads to greater personal freedom and self-respect.

In the 1960s, Yale professor Stanley Milgram conducted a series of famous experiments studying obedience to authority. Subjects were encouraged by an authority figure to administer electric shocks – in a supposed study of the effects of negative reinforcement on memory and learning – to a person they'd just met (who was actually an actor).

Understanding that they could be seriously harming, and even killing this person – whom they could hear but not see – and prodded by Dr. Milgram to continue despite their misgivings, two-thirds of the subjects administered what they believed were potentially fatal shocks in the name of science. Were these people who would typically engage in or perpetrate violence? No, they were just people who responded to an ad, people like you and me.

The conclusion? We humans readily obey others in authority, even when doing so defies our deepest values.

When we defy our values and succumb to authority – whether that authority figure is a man in a white lab coat urging us to administer painful shocks, or an advertiser manipulating us to want products that cause harm and destruction largely hidden from our view – we strip ourselves of the freedom to follow our conscience and we cede our individual will to societal norms, people in power, and manipulative algorithms.

"That, in turn, spurs the creation of new and better systems that make living humanely and sustainably easier for everyone..."

PART I: WHY & WHAT

When, instead, we take responsibility for learning about the impacts of our choices and actions on other people, nonhuman animals, and the environment, and then act in accordance with what we know and value, we free ourselves to look in the mirror each day and have respect for the person who looks back.

We also set the stage for recognizing and resisting, at a larger societal level, systems that create the conditions for violence toward and exploitation of others.

For all these reasons, cultivating the best qualities of human beings and modeling the MOGO principle for our students – and encouraging them to do this as well – helps those we teach become more compassionate, generous, dedicated people, and solutionaries, creating a positive feedback loop that supports more solutionary thinking and action.

To reflect upon how you and your students might strive to live according to the MOGO principle, we invite you to complete this MOGO questionnaire. (You can find our youth edition for your students here.)

What comprises solutionary thinking and practice?

Solutionary thinking is comprised of many other forms of thinking, but primarily:

CRITICAL THINKING
SYSTEMS THINKING
STRATEGIC THINKING
CREATIVE THINKING

CRITICAL THINKING lies at the heart of solutionary thinking. We need to have discernment and the ability to ascertain what is factual; to distinguish fake news from truth; and to analyze and assess one's own thinking processes. Without critical thinking, we cannot build the knowledge necessary to solve problems effectively or in a solutionary manner.

All of the Phases in the Solutionary Framework require critical thinking.

"...we strip ourselves of the freedom to follow our conscience and we cede our individual will to societal norms..."

PART I: WHY & WHAT

According to Learning for Sustainability, SYSTEMS THINKING "encourages us to explore inter-relationships (context and connections), perspectives (each actor has their own unique perception of the situation), and boundaries (agreeing on scope, scale, and what might constitute an improvement). Systems thinking is particularly useful in addressing complex … problem situations." Seemingly intractable problems are the result of systemic structures that are interconnected and complex.

Systems analysis means identifying the systems that perpetuate problems and the worldviews, psychological underpinnings, and mindsets that keep these structures in place. Systems thinking, therefore, is essential to solving problems in ways that are solutionary and reduce unintended negative consequences.
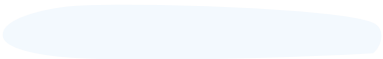
Systems thinking is needed in Phase 2 of the Solutionary Framework.

STRATEGIC THINKING involves the generation of effective ideas for achieving a goal or solving a problem. Strategic thinking can be practiced both individually and collaboratively. We may come up with many ideas for solving a problem, and some of those ideas will be more strategic than others. Learning to think strategically leads to a greater likelihood of successful implementation of solutionary solutions.
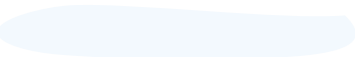
Strategic thinking is called upon in Phase 3 of the Solutionary Framework when trying to identify which solutions are most powerful and the most feasible.

CREATIVE THINKING involves addressing problems in a fresh, novel, inventive, and/or unorthodox manner. In the case of solving pervasive problems, creative thinking largely consists of generating ideas that no one has thought of or applying knowledge, skills, and/or processes from one domain to another in a new or innovative way. In other words, creative thinking may come into play not only by devising a new solution, but also by discovering solutionary ideas that already exist but are not being implemented because of entrenched systems that impede their adoption. The creative thinker may develop ideas for transforming those systems to allow an existing solutionary idea to take root.

Creative thinking is necessary in Phase 3 when developing solutions.

> **"We may come up with many ideas for solving a problem, and some of those ideas will be more strategic than others."**

PART I: WHY & WHAT

While these four kinds of thinking happen in a nonlinear fashion, they can and do build upon one another sequentially to help people become more successful solutionaries. Consider the following:

- Without critical thinking at the base, systems thinking becomes challenging.
- Without critical AND systems thinking operating together, strategic thinking may not successfully advance the most solutionary ideas.
- Without critical, systems and strategic thinking, creative thinking may lack the foundation that enables the imagination to consider exciting new ways to advance the best solutions.

When brought to bear on problems, solutionary thinking leads to the development of solutionary solutions.

What is a solutionary solution?

What does a solutionary solution look like?

A SOLUTIONARY SOLUTION:

- reflects a deep understanding of the complexities of the problem, its causes, and the underlying systems that perpetuate it;
- strives not to harm people, animals, or the environment and seeks to avoid unintended negative consequences;
- works to positively transform the underlying systems that perpetuate the problem.

Devising solutionary solutions is challenging in and of itself. Implementing solutionary solutions is even harder. In fact, there are many solutionary solutions that have been proposed to solve complex problems, from climate change to poverty to health problems to animal cruelty to failures of democracy.

What prevents many excellent solutions from being successfully implemented is usually the imperfect, often corrupted, interconnected systems in which the problem is embedded and through which powerful interests bring influence to bear.

If it were easy to implement solutionary solutions, we would have solved most of the problems we face in the world.

> **"When brought to bear on problems, solutionary thinking leads to the development of solutionary solutions."**

PART I: WHY & WHAT

We should not expect that we, let alone children and adolescents, will be able to easily (or often) come up with and implement the most solutionary solutions to complex, entrenched problems.

While the Solutionary Process (described in the next section in detail) suggests a specific progression – from students identifying the problems they are most passionate about solving to devising, implementing, and sharing the most solutionary solutions – it's important to note that there are variations on the process that are equally and sometimes even more valuable.

For example:
While students may be passionate about addressing a huge global problem, it is often more productive for them to identify local manifestations of that global issue and implement a solutionary solution at the local level. Even if these solutions do not significantly impact the larger problem, success at the local level comes with important benefits for students. Students can:

- connect in person with stakeholders.
- become empowered by their accomplishments and learn that they can indeed create positive change.
- share their solution with others as a template to be adopted elsewhere, helping the solution spread and gain traction.
- assess their solution's success over time, address any unintended consequences that may arise, and improve upon their efforts.
- build upon local achievements because they will gain increasing levels of skill and confidence.

It is also extremely valuable for students to identify others' solutionary solutions and to implement them. Successful implementation of others' solutionary solutions requires the development of important skills, builds confidence and experience, and makes a difference.

"It is also extremely valuable for students to identify others' solutionary solutions and to implement them."

PART I: WHY & WHAT

Solutionary solutions not yet implemented may need solutionary ideas for implementation. For example, students may discover solutionary solutions to address racism, homelessness, gun violence, animal abuse, or the climate crisis, which are not being implemented because of systemic structures that prevent their adoption. Students can do valuable solutionary work to address those systemic barriers successfully so that implementation becomes more feasible and likely. This kind of solutionary thinking is essential for putting into practice the many excellent ideas that have been proposed by countless people and groups.

It is important to stress that what is of greatest importance isn't any one student's success at implementing a solution to a local or global problem, but rather all students gaining the ability to bring solutionary thinking and practices to every issue or problem they encounter.

EVALUATING SOLUTIONS ON A SOLUTIONARY SCALE

The scale below will help you and your students assess solutions and strive toward devising more and more solutionary solutions over time.

EMERGING	DEVELOPING	SOLUTIONARY	MOST SOLUTIONARY
The solution, while well-intentioned, does not yet address root and/or systemic causes (and may produce unintended negative consequences to people, animals, or the environment).	The solution addresses root and/or systemic causes but produces unintended negative consequences to people, animals, or the environment.	The solution addresses root and/or systemic causes and strives not to produce unintended negative consequences to people, animals, or the environment.	The solution **significantly and strategically** addresses root and/or systemic causes and does not harm people, animals, or the environment.

It can be helpful to assess solutions using this scale in order to become more adept at distinguishing what constitutes a truly solutionary solution. It is not uncommon to equate good deeds with effective changemaking, but they are not the same. It is also not uncommon to equate innovative ideas that may help relieve the worst symptoms of a problem with ideas that address the causes of the problem so that it doesn't continue in the future. Being able to distinguish these acts and ideas is important.

PART I: WHY & WHAT

Below you'll find examples of solutions with our assessment about where they fall on the scale:

1. A group of high school students brings a lawsuit against the U.S. government asserting that their constitutional right to life, liberty, and the pursuit of happiness is being violated by the government's inaction on and contribution to the climate crisis.

→ **SOLUTIONARY to MOST SOLUTIONARY:**

Does not harm others and helps address the problem in a significant, systemic way. Note: this solution will require other solutionary solutions to address the political and economic systems that may prevent success, as well as the potential negative impacts on the economy if they win their lawsuit, which could lead to rapid changes in various industries.

2. A group of middle school students creates a petition to influence their school to stop using disposable utensils, plates, cups, and trays. They collect signatures from over 80% of the school body, prepare a presentation detailing the negative impacts of the production and disposal of these products, and invite stakeholders to attend their presentation, including the local press, during which they deliver their research and petition to those in charge of making decisions about cafeteria materials.

→ **DEVELOPING to SOLUTIONARY:**

Petitions often represent emerging or developing solutions because they are not always followed by careful research, presentation to the appropriate decision-makers, and continued pressure that leads to actual change. In this case, students gathered enough support and made a strong case on the negative impacts of disposables, increasing the likelihood of success. Including media also boosts their potential impact. What is unknown are the systems that led to the use of disposables in the first place. Without addressing these, their solution may not be adopted. Note: while a single-school effort may not have far-reaching impacts by itself, this solution is replicable, scalable, and offers a potentially successful approach others can adopt.

> **"...students gathered enough support and made a strong case on the negative impacts of disposables..."**

PART I: WHY & WHAT

3. After a class trip to Washington, D.C., a group of children is deeply distressed about the homelessness they witnessed. They organize a food and clothing drive for a homeless shelter.

⟶ **EMERGING:**

> While their humanitarian efforts are important and beautiful, they are not solutionary because they do not address the causes of homelessness nor attempt to stop homelessness from continuing.

4. To address the growing number of deer in their community – who are vectors of ticks that carry Lyme Disease, frequently collide with cars, and eat people's flowers in their gardens – a group of high school students in suburban New England prepares a presentation to their town council to promote an annual daylong hunt.

⟶ **EMERGING to DEVELOPING:**

> The solution attempts to solve the problem by establishing a repeating hunt that will decrease the population of deer. However, the solution does not take into consideration the interests of the individual deer who are killed, those deer who will suffer from the death of their family and community members, the impacts on the health of the herd (since healthy and strong deer will be killed rather than weak and old deer who would normally be killed by predators), or the potential danger to people when deer are hunted in close proximity to houses and communities. Nor does the solution address the causes of a growing deer population: encroachment on their habitat and the killing of those wild animals who prey on them.

"…humanitarianism isn't the same thing as solutionary action."

There are no absolutes when assessing solutions. Much depends on the long-term success and reach of implementation. We offer this scale not to "grade" students, but to help you and them refine understanding and move further along the scale toward most solutionary.

The solutionary scale is also not meant to diminish the motivations and significant humanitarian efforts of dedicated youth, but rather to help young people think even more strategically and creatively from a systems perspective.

It is common for schools to promote and support youth in community service projects, and we support this intention. At the same time, humanitarianism isn't the same thing as solutionary action. Our communities and the world need both, yet solutionary thinking and action have not been a focus in schools or even many nonprofits. We believe they should be.

"We offer this scale not to "grade" students, but to help you and them refine understanding and move further along the scale toward most solutionary"

Why is implementation so important?

While we do not want you to feel overburdened by the call to ensure that students have the chance to implement their solutions, we do want to stress how important implementation is.

We understand that there are constraints in the curriculum that make implementation challenging, but the curriculum can also be viewed through a different lens: where are the opportunities within it for implementation?

As you bring solutionary practices to your students and use the Solutionary Framework described in the next section of this guide, we encourage you to discuss with colleagues and administrators how you might integrate implementation into your schedule and curriculum for the maximum benefit of this work.

What challenges might I face?

There are a variety of challenges we and our students may experience on the path to becoming solutionaries. Some are practical challenges that teachers and students face, such as lack of time; curricular requirements that interfere with lesson flexibility; lack of support from administrators; community or parental resistance, etc.

In this section, we share just a few of the psychological challenges you or your students may experience on the path to making MOGO choices and becoming the best solutionaries they can be.

Knowing the challenges we and our students may face on the solutionary path enables us to acknowledge and work through them. It's important to recognize the obstacles for what they are: normal psychological phenomena worthy of our attention.

With a focus on learning together, we can meet these challenges so that they do not prevent our solutionary work from moving forward.

"In a globalized world, it is simply not possible to be cognizant of all the impacts we have through our daily choices."

PART I: WHY & WHAT

FEELING OVERWHELMED

It's difficult enough to practice kindness and compassion, integrity and honesty, generosity and helpfulness, and perseverance and courage in our everyday interactions with people and in situations we know well. In a globalized world, it is simply not possible to be cognizant of all the impacts we have through our daily choices.

For example, notice what you are wearing right now. Do you know how the production of your clothing affected other people? Animals? The environment? Imagine trying to find out. Your search could take you around the globe, perhaps more than once. There would be so much to learn, and so many questions to answer. What is the fabric made of and how was it produced? How did it get from where it was produced to where it was turned into clothing, and what resources were involved? Who turned the fabric into clothing? Were they treated humanely and fairly? Did they earn a living wage? What were the conditions in the factory where they worked? Was the garment bleached and/or dyed? What were the impacts of those processes on people, other species, and the environment? How did the garment get to you? Who and what was affected in that process?

Multiply these questions, and many others, by all the foods you eat, the energy you consume, the products you buy, the transportation you use, and it can feel overwhelming to think about making kind, sustainable, just choices.

Meeting this challenge:
While it certainly can feel overwhelming to consider the impacts of our everyday choices, learning about the many systems that go into them is fascinating. The investigative process is the learning process – inherently interesting, thought-provoking, meaningful, and energizing.

Taking the plunge into research is likely to be more mind-expanding than overwhelming once we start. We've seen this happen again and again both with teachers and youth: once one begins researching, one's curiosity and desire to learn more starts to grow. Then, as we learn, opportunities to make more sustainable and humane choices often reveal themselves, and making these new choices usually feels great.

> **"Taking the plunge into research is likely to be more mind-expanding than over-whelming once we start."**

FACING OUR COMPLICITY

As we take a deep dive into learning about the effects of our daily decisions in order to make healthier and more humane choices and understand the systems in need of change, we will soon discover that we cannot easily extricate ourselves from all systems that cause harm, even if we want to.

For example: We can diminish, but not end, our reliance on fossil fuels. We can lessen, but not avoid, our participation with unsustainable mining, farming, production, construction, and other systems. We can strive for justice, but find ourselves the beneficiaries of unjust systems. When faced with their complicity, some people may retreat from, rather than engage in, making different choices and creating change.

Meeting this challenge:
It is so important to be gentle with ourselves and find a balance between striving for perfection (not possible) and doing nothing (which actually feels crummy). Personal agency leads to hope and enthusiasm. Again, taking the plunge into solutionary action and solutionary teaching practically always mitigates feelings of complicity because we know we are making a difference.

FEELING DESPAIR

Learning about the problems in the world can lead some to despair. Given this, it may seem counterintuitive to expose ourselves, let alone young people, to frightening and upsetting issues. However, the reality is we cannot hide from the bombardment we experience from the media. Even young children know about grave and potentially catastrophic problems and terrible cruelties, whether or not they are learning about them in school.

Meeting this challenge:
Hope is fueled by action, as these leaders—young and old—so eloquently state on the next page.

> **"It is so important to be gentle with ourselves and find a balance between striving for perfection (not possible) and doing nothing"**

PART I: WHY & WHAT

The work you and your students will do as solutionaries is empowering, hope-inducing, and does wonders to stave off despair.

"Action is the antidote to despair."
– Joan Baez, singer/songwriter

"Hope is a verb with its sleeves rolled up."
– David Orr, Oberlin College Professor

"The best way to not feel hopeless is to get up and do something. Don't wait for good things to happen to you. If you go out and make some good things happen, you will fill the world with hope, you will fill yourself with hope." – President Barack Obama

"Once we start to act, hope is everywhere."
– Greta Thunberg, teenage climate activist

> " If new information is threatening, we tend to cling to and remember those aspects that support our worldview…"

COGNITIVE DISSONANCE

When faced with the discomfort that arises when one's beliefs and values come into conflict with new information, people may experience what's referred to as "cognitive dissonance." When this occurs, some may try to resolve the internal conflict to avoid psychological inconsistency by rejecting the new idea or information.

You may have experienced this yourself reading this guidebook. If some of the information in this section has raised awareness about ways in which your personal choices are not aligned with your values (perhaps in relationship to what you eat or wear), you may have tried to relieve this stress by either skimming sections or rejecting information. Alternatively, you may have found yourself contemplating personal changes. Either way, most people try to reduce the dissonance that arises when new information contradicts previously held beliefs or current behaviors by rejecting the idea rather than enduring the discomfort and critically examining the long-held belief.

In our experience, young people are often less resistant to new information that contradicts their previously held beliefs, ideas, and values. This may be because they expect to be developing new opinions and forming their values over time, since they know they are young. With that said, they (like us, their teachers) will likely struggle with new information that causes them psychological stress and will seek to reduce that stress by various means, including resisting or dismissing new information.

Meeting this challenge:
Critical thinking is essential in the solutionary process is because critical thinking enables us to meet cognitive dissonance with openness. If we are willing to investigate and learn new things, we will regularly confront cognitive dissonance and learn to manage it.

While we may not always enjoy having our beliefs and ideas questioned, we gain self-confidence and self-esteem as we realize we have the skills to ascertain what is true and false. We may also find ourselves feeling liberated as we realize that thinking critically allows us to grow in exciting, unique, and important ways.

CONFIRMATION BIAS

Confirmation bias goes hand in hand with cognitive dissonance. Confirmation bias refers to the tendency to seek out, recall, and understand new information in a way that confirms our pre-existing beliefs and values. If new information is threatening, we tend to cling to and remember those aspects that support our worldview, as well as interpret any ambiguous information in ways that align with our current perspectives.

In a polarized political climate, and with selective media feeding us what we want to hear, it requires commitment to pursue information that challenges our current thinking and perspectives. If we are not willing to make this commitment, we will be hard-pressed to take all stakeholders' views into consideration, and it will become more difficult to uncover or create solutionary solutions.

Meeting this challenge:
We know that teachers face challenges bringing polarizing and/or political issues into classrooms, but there are ways to bring important controversial topics into classrooms that serve students well, while simultaneously helping them to resist confirmation bias. A solutionary mindset leads people to look at issues and problems from multiple points of view, which means solutionaries seek out perspectives that differ from their own. In fact, the more one practices solutionary thinking, the more one is inclined to actively investigate differing viewpoints. This makes it possible to examine controversial and polarizing topics in classrooms in balanced, even-handed, healthy ways.

EITHER/OR THINKING

Some of the psychological tendencies described above contribute to the pervasive climate of either/or thinking in our society. Earlier, we described the conflict that arose when the Northern Spotted Owl was placed on the endangered species list. The media and politicians began framing the issue as a choice between owls and loggers. People then began choosing sides, even posting their allegiance to their side through lawn signs. Dialogue about and efforts to discover how to protect owls, forests, and jobs were hard to find. Even the very concept of sustainability is often presented as an either/or: Either we protect the environment, or we promote healthy economies, a terrible and unnecessary choice!

"Schools routinely perpetuate either/or thinking through academic debates."

PART I: WHY & WHAT

Schools routinely perpetuate either/or thinking through academic debates. These practices are ubiquitous in the U.S., with students often assigned to take "a side" and debate a problem that has been cast in either/or terms.
They are told to research, argue, and attempt to win. While there are certainly intellectual benefits to debating, the goal of debate is not to solve the problem, but to produce the best argument and present it in the most compelling way.

If this is a primary way young people are taught to think about complex problems, and if this is what is modeled in our media and politicians, it becomes challenging to forge a different practice that invites us to embrace the concept of "yes, and … " in which we seek to validate the perspectives of others and add to them with more in-depth, solutionary thinking.

(Please note that we aren't suggesting an either/or here. Not all perspectives are equally legitimate, and there are times to "choose sides," especially when bigotry, cruelty, and destruction are advocated and violence is perpetrated.)

Meeting this challenge:
An obvious alternative to the debate model is a solutionary model, where students look at all facets of a pressing local or global issue, research causes, map systems, find leverage points, propose solutionary solutions, and implement and share their ideas. Simply put, solutionary thinking is a corrective to either/or thinking, and this guidebook is meant to help meet this challenge!

THE BYSTANDER EFFECT

The bystander effect refers to the psychological phenomenon in which people are less likely to help someone in need when other people are present, diffusing responsibility. While this effect has been demonstrated in psychological experiments where there is a victim present who needs assistance, we are applying it in a larger context.

What happens if we believe other people will solve the problems we face, and that we don't need to become solutionaries ourselves?

This is an important question to pose about our educational system itself, as well as one to reflect upon personally as a teacher. Currently, the education system is largely playing a bystander role.

"**What happens if we believe other people will solve the problems we face…**"

PART I: WHY & WHAT

> **"A spontaneous outpouring of cheers and applause erupted as students gave their beloved teachers a standing ovation."**

Given the potentially catastrophic problems our children will face in the coming decades, are we not abdicating our responsibility to prepare them for their future if we fail to deeply integrate solutionary practices into their education?

The title of IHE President Zoe Weil's 2016 book on education is "The World Becomes What We Teach." If this title is a truism, how can we take it to heart as educators?

Meeting this challenge:
It is likely that your students will want to be solutionaries, not bystanders. In our experience, students are energized when they are given the opportunity to learn about the problems that most concern them. This is even more the case when students are given the tools for solid investigation and research and are invited to collaborate to solve challenges they care about. We have heard many young people describe solutionary units as the most meaningful experiences they've had in school. Knowing this, perhaps the most powerful way we educators can prevent the bystander effect from taking root in our classrooms is by embracing the profound role we have as teachers to be proactive in bringing issues of importance to our students and engaging with them deeply to make a difference. Lest this sound burdensome, it is also our experience that teachers who bring solutionary practices to their students also become energized!

In 2018, the Institute for Humane Education hosted a Solutionary Summit at the University of Southern Maine.
The students who presented at the Summit came from different schools and different backgrounds, ranged in age from eleven to eighteen, and tackled different problems. What they had in common were teachers who brought solutionary units to their classrooms, integrating solutionary thinking in a variety of ways.

Toward the end of the Summit, we invited these teachers on stage. Our plan was to express a few words of thanks, but our plan turned out to be unnecessary. A spontaneous outpouring of cheers and applause erupted as students gave their beloved teachers a standing ovation.
We hope that reading about this reminds you of the powerful influence you have as a teacher.

If you need more inspiration for tackling the challenges mentioned above, please watch this video of the teachers and students who participated in our solutionary program in Maine and attended the Solutionary Summit.

PART 2: HOW

Getting Started

There is no one way to learn to be a solutionary. As you read through this section, find what works for you, your students, and your educational setting. Bring solutionary thinking to your students in the ways that make the most sense for you and them.

Implement the Four-Phase Solutionary Framework

IHE has created a flexible four phase framework for bringing solutionary thinking and action to students that leads to the development, implementation, and public sharing of solutionary solutions. The framework essentially shows teachers how they can become changemakers using a humane, solutionary lens.

The Solutionary Framework can be used in many required content area courses, especially in grades 4 and up. The Framework integrates well with many topics and curricular goals in social studies, language arts, the sciences, art and design, and foreign languages and can easily be used to structure an elective course, genius hour, January term, winterim course or time at the end of the year after exams.

The Solutionary Framework can also be integrated into a variety of out-of-school educational settings:

- After-school programs or clubs
- Community youth programs
- Summer programs/camps

We strongly recommend that teachers implement the entire framework with their students including public presentation of their solutions for both feedback and communication to expand impact. Students can seek feedback from legislators, community members, and fellow students, especially when they are working on local issues. Public presentations can be made to parents, media, investors, legislators, and others who can help bring the best ideas to the next level.

"...find what works for you, your students, and your educational setting..."

PART 2: HOW

Integrate aspects of the solutionary process into your teaching

Curricular restrictions:
Some teachers may find that only certain steps of the Solutionary Framework fit easily into their curricula, while others may find that the process may needs to be modified. For example, science teachers may not be able to allow their students to choose to address and solve any problem of concern to them because the curriculum requires that problem-based learning be related to a subject in science they are studying. In that case, science teachers exploring human impact on environmental challenges might have all the students address the same problem, e.g., disposal of plastics, or work in small groups to research and solve a set of problems related to climate change.

Time constraints:
Other teachers may only be able to allocate a few weeks to solutionary work, which may not leave time for students to implement or publicly share their solutions. Teachers can still use many aspects of the process, culminating in the identification of solutionary solutions and substantial experience with solutionary thinking. One way that teachers can extend impact on student solutionary thinking and future action is by having students identify a solutionary solution to the issue being addressed and then research to see if any local or regional organizations are working on that solution and, perhaps, to do some service learning with the organization. For example, students might study the multiple and extended effects of denuded landscapes and then find an organization that does large scale tree planting with whom the students can work to restore habitat and capture CO_2.

Interdisciplinary projects:
Teachers can increase the impact of solutionary thinking and action by working and planning to implement the framework with fellow teachers in different disciplines, thereby lessening the impact on any one teacher's time for instruction. For example, English language arts teachers might focus on developing research, project planning, writing and presentation skills while social studies teachers might focus on the action civics content of the project and arts teachers and foreign language teachers might help students communicate their solutions effectively to multiple audiences.

"Teachers can increase the impact of solutionary thinking and action by working and planning to implement the framework with fellow teachers..."

Introduce a solutionary practice to your students

There are some teachers for whom the Solutionary Framework just doesn't fit into their curricular requirements, or who can't get permission from administrators to implement changemaker education, even in a modified way. If this applies to you, that doesn't mean that you can't educate your students to be solutionaries.

Take whatever is useful to you from this guidebook and our resources and put it to use in a way that makes sense for your setting. For example, you can coach students to have a solutionary lens on whatever issues you are studying as part of teaching and learning in your classroom.

We describe a solutionary lens as the effort and ability to:

- SEE that problems can be solved
- SEEK the perspectives of others
- RECOGNIZE that problems don't exist in isolation
- FOCUS on solutions
- LOOK for ways to ensure that no people, animals, or ecosystems are harmed by a proposed solution

The capitalized words above should make it clear why we call this a "lens" – the verbs associated with this lens are all oriented toward how we see problems and envision solutions.

"Take whatever is useful to you from this guidebook and our resources and put it to use in a way that makes sense for your setting."

PART 2: HOW

Nonnegotiables for Your Solutionary Practice and Teaching

However you choose to bring solutionary teaching and learning to your students, a commitment to the following is essential:

TAKE PEOPLE, ANIMALS, AND THE ENVIRONMENT INTO CONSIDERATION

Solutionaries consider the impact of solutions on people, nonhuman animals, and the environment. We've made this point before, but if students are neglecting to take into consideration the impacts of their solutions on any individuals or groups who would be affected, then they are not learning how to be true solutionaries. Pay attention to this yourself, too. Perhaps you're a science teacher engaging your students in a study about ecosystem impacts of an introduced animal species. The obvious solution might be to kill the introduced animals, but this would clearly harm them. What else could be done to solve the problem, taking into consideration the impact on the animals introduced to a region through no fault of their own?

ADDRESS THE KINDS OF PROBLEMS THAT WILL LEAD TO SUCCESSFUL LEARNING AND ACTION

What problems can your students legitimately address and solve successfully given their age, experience, and the time you can dedicate to solutionary learning? Many children may wish to address huge global problems such as the climate crisis, poverty, racism, species extinction, human trafficking, etc. However, students may learn more, be more successful, and gain the necessary skills to better succeed in tackling such big problems by addressing local manifestations of larger systemic challenges.

In other words, coupling students' spheres of concern with their spheres of influence will usually result in more positive impacts, increased confidence, and greater enthusiasm to continue.

"...coupling students' spheres of concern with their spheres of influence will usually result in more positive impacts..."

PART 2: HOW

By focusing on a local issue, students will also have the opportunity to work directly with stakeholders. For example, one high school group from Maine wished to address sex trafficking. Instead of addressing the entirety of this global problem, they addressed the challenges faced by girls and women rescued from sex trafficking in their state, for whom there was little support and help to reintegrate into society. The students drafted legislation to ensure that those who'd escaped from sex trafficking in Maine were provided with support, housing, counseling, and job training.

Another group concerned about the U.S. problem of the "school-to-prison-pipeline" focused on changing their school's disciplinary policy to keep students in school rather than suspend them for infractions, and to build anti-racist restorative justice practices into disciplinary procedures. This represented a compassionate, effective approach for everyone involved and helped the students facing disciplinary measures make personal amends, learn from their mistakes, and get back on track. The school adopted the restorative justice policy proposed by the students.

With this said, if a student or group wishes to address a huge, global issue such as the climate crisis, it's important to support them. They may come up with innovative ideas for implementing potentially game-changing existing solutions; influencing public opinion and laws; or securing media attention that leads to changes no one has thought of before. While a local focus may often be preferred and lead to greater initial success, this should not be perceived as a requirement.

ADDRESS THE SYSTEMS

We've already discussed the difference between solutionary solutions and kind acts, charity, and other humanitarian efforts that are positive, but which don't solve the problems they seek to alleviate. Food drives, beach and road clean-ups, and volunteering to help others in need are all wonderful things to do, and we encourage you to bring such community service opportunities to students. Acts of kindness are always a good thing!
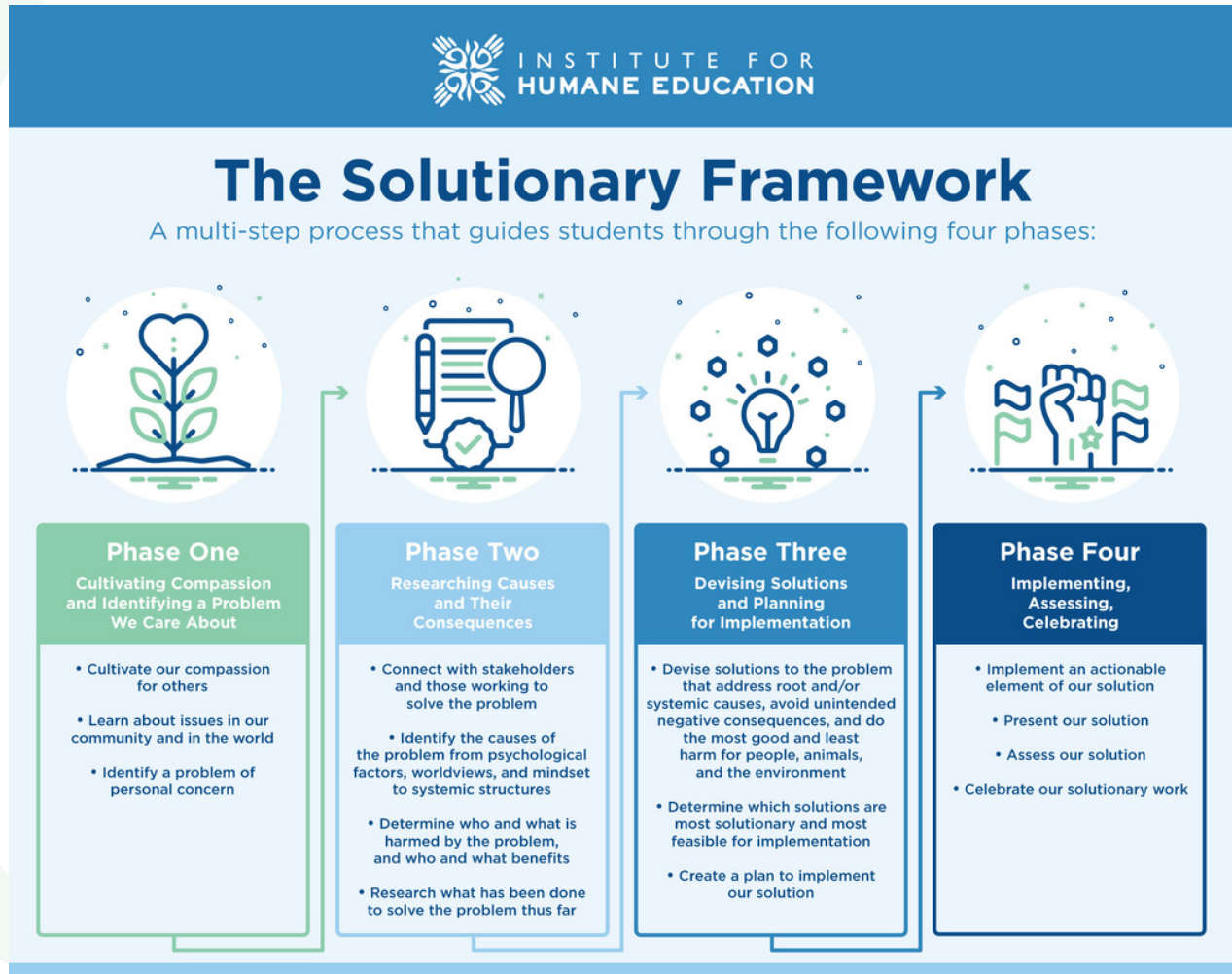
That said, to be solutionary, students must understand the causal factors, including mindsets, psychological factors, and systems that perpetuate the problems, and seek to transform them so that the problems cease to exist.

"By focusing on a local issue, students will also have the opportunity to work directly with stakeholders."

PART 2: HOW

The Solutionary Framework

The steps of the solutionary process can be best understood using IHE's four-phase Solutionary Framework.

INSTITUTE FOR HUMANE EDUCATION

The Solutionary Framework

A multi-step process that guides students through the following four phases:

Phase One
Cultivating Compassion and Identifying a Problem We Care About

- Cultivate our compassion for others
- Learn about issues in our community and in the world
- Identify a problem of personal concern

Phase Two
Researching Causes and Their Consequences

- Connect with stakeholders and those working to solve the problem
- Identify the causes of the problem from psychological factors, worldviews, and mindset to systemic structures
- Determine who and what is harmed by the problem, and who and what benefits
- Research what has been done to solve the problem thus far

Phase Three
Devising Solutions and Planning for Implementation

- Devise solutions to the problem that address root and/or systemic causes, avoid unintended negative consequences, and do the most good and least harm for people, animals, and the environment
- Determine which solutions are most solutionary and most feasible for implementation
- Create a plan to implement our solution

Phase Four
Implementing, Assessing, Celebrating

- Implement an actionable element of our solution
- Present our solution
- Assess our solution
- Celebrate our solutionary work

PART 2: HOW

"Compassion is empathy coupled with the desire to alleviate suffering."

PHASE 1

1. Cultivate compassion
2. Learn about issues in your community and in the world
3. Identify a specific problem you care about solving

PHASE 2

4. Connect with stakeholders and those working to solve the problem
5. Identify the causes of the problem from systemic structures to psychological factors, worldviews, and mindsets
6. Determine who and what is harmed by the problem, and who and what benefits
7. Research what has been done to solve the problem thus far

PHASE 3

8. Devise solutions that address the causes of the problem and which do the most good and least harm to people, animals, and the environment
9. Determine which solutions are most solutionary and most feasible for implementation
10. Create a plan to implement your solution

PHASE 4

11. Implement your solution
12. Present your work
13. Assess, reflect, share, iterate
14. Celebrate!

Part 2 in this Guidebook takes you through each of the Phases and steps with ideas for how you can implement each with your students.

Phase 1

The first three steps in Phase 1 of the Solutionary Framework set the stage for the other three phases. Each of these steps requires teachers to think of how they will help their students become more compassionate and how to best engage students in learning about issues facing our world while also inspiring students to want to take action.

1. Cultivate compassion

Many teachers tell us that they want their students to have and show more empathy. Empathy – the ability to understand and care about others' feelings – not only builds kinder classrooms and communities. Empathy is usually the force behind people's efforts to make a difference for others. Compassion is empathy coupled with the desire to alleviate suffering. If teachers cultivate compassion in their students, the motivation for solutionary work is set.

Cultivating compassion begins with modeling compassion. The more we educators demonstrate our own empathy for others – our students, neighbors, people whose lives we impact through our everyday choices, and animals – the more we will increase our students' Compassion Quotient (CQ). If we show our students we care, we set the stage for them to care.

In general, one of the most effective ways to cultivate compassion among your students is to share stories. Statistics often distance us from suffering. Stories of individual people and about individual animals ignite empathy. When choosing stories – whether historical or modern accounts – make sure to include narratives of people who worked to end past atrocities, and who are succeeding at doing so today. The stories of both the suffering and the solutionaries who stopped the suffering are essential components for nurturing the empathy that serves as the foundation for, and lead to, action. (You can find many stories of changemakers in Zoe Weil's book Most Good, Least Harm and a list of recommended books here.)

"...one of the most effective ways to cultivate compassion among your students is to share stories."

Be aware that there is a shadow to nurturing compassion. Learning about the grave problems and horrific harms in the world can create emotional pain and lead to despair or indifference among some people. While it's important for teachers to expose students to issues that will ignite their compassion in age-appropriate ways, we must also take care not to overexpose them, and to balance the knowledge they gain with the action that will ensure they feel hopeful and energized. Be aware of the developmental stage of your students and gauge your lessons accordingly.

As students' compassion is ignited, your job is to help them consider their own impact on others, reflect on their deepest values, understand others' perspectives, avoid apathy, and become inspired to learn more so they can act more effectively as solutionaries.

Empathy is innate, but it can also be fragile. If our circumstances require building a hard, protective shell; if we have been abused and bullied; or if we have been overloaded by too much suffering from exposure to cruelty and violence, our empathy can be diminished. Witnessing or hearing about trauma others endure can trigger our own feelings of fear, anxiety, and helplessness. Of course, many who have not faced such circumstances lack empathy, but it's useful to be aware of the ways in which empathy can be influenced by what happens to us in life. Such awareness will help make our cultivation of compassion careful, nuanced, and individualized.

For example:

1. A teenager who bullies others may be a currently or formerly bullied child, turning hurt into anger instead of compassion for others. A child who perpetrates harm on others needs as much attention and kindness directed at them as the child who is harmed. Finding cracks in their hard shells, where they can feel compassion for others, may open the door to their energy being directed in positive, instead of hurtful ways. (It is true that there is a small percentage of people who are sociopaths and do not/cannot experience empathy, but most children who bully others are not sociopaths.)

> **"...it's useful to be aware of the ways in which empathy can be influenced by what happens to us in life."**

To increase CQ:

If the child in question likes animals, consider introducing them to opportunities to help an abused animal by volunteering under supervision at an animal shelter or sanctuary. Often, children feel safe with animals and the vulnerability of animals opens their hearts in ways that can extend to their relationships with people. The next step might be solutionary work with other children to stop abuse, building healthy, collaborative relationships. The teamwork may well spill over into more kindness, understanding, and empathy in general.

2. A dedicated student activist, passionate about environmental issues, may become overwhelmed by the news of climate change inaction, or by a failed campaign to influence legislation, or by compassion fatigue. Such students may need restoration through laughter, play, and time in nature. The most compassionate, dedicated young people may be at the greatest risk for burnout, and it's our job to nourish their sense of hope and efficacy.

To increase CQ:

Consider providing such students with books, articles, and films that remind them of the progress that has been made. Suggest field trips that fill their hearts with joy and make connections with environmental activists who are happy and hopeful. Introduce them to strategies for self-care and self-compassion. (Suggested resources follow and are also in the Resources section of this guidebook.)

3. A young person may appear not to care about those living in poverty, affected by the opioid crisis, or facing flooding due to increased rainfall and storms. They may be very forthright in stating that people have to take responsibility for themselves, and that they are not obligated to help others who make poor choices. Their cynicism and apathy may seem hard to shift.

To increase CQ:

Consider thanking the student for their honesty and then inviting them to hear from others who've experienced poverty, addiction, or a natural disaster – through video, written accounts, or in-person visits. Help students distinguish between the system and the individual. n the case of poverty for example, there is a tendency to want to "blame the poor" rather than fix the systems that perpetuate poverty...

> **"...Consider thanking the student for their honesty and then inviting them to hear from others."**

PART 2: HOW

"Many times, however, individual teachers are on their own, wondering how to support students..."

These strategies can break down barriers to empathy. From our experience, it's sometimes the kids who are seemingly least compassionate, or who play devil's advocate the most vocally, who later become the biggest allies in change-making.

RESOURCES THAT WILL GET YOU STARTED

Use activities like Circle of Compassion and the student version of the MOGO Questionnaire to help students reflect more deeply on their values and their circles of concern. Using a journal to track any changes in values and views over time will also be helpful. Encourage students to be creative with this – use a digital journal, cartooning, a class blog, daily short interviews, a group mural, etc.

This video, All That We Share, highlights that we have more in common than we may think.

StoryCorps offers a website full of stories, many oriented toward young people, which teachers can use in classrooms. In addition to sharing individuals' stories with children, students can also create their own StoryCorps interviews, fostering empathy and connection.
Dave Meslin talks about The Antidote to Apathy at TEDxToronto 2010, (6:59 min) and barriers that "keep us from taking part in our communities, even when we truly care."

Share examples from Stories of Solutionaries and Changemakers.

See IHE's curated Pinterest board on Setting Up a Humane Education Classroom for ideas and resources for embedding compassion (and other qualities) in your classroom. (Here's one for educators of elementary school students.)

See IHE's curated Pinterest board on Cultivating Ethical and Humane Values for resources and guidance for nurturing humane values in students.

Search IHE's Resource Center and Humane Connection blog (search them separately, as IHE's search engine doesn't combine their results) for resources and insights about compassion and empathy.

2. Learn about issues in your community and in the world

Opportunities abound to introduce your students to topics that may be of deep and abiding concern to them. One of the best ways is through interdisciplinary projects focused on responding to essential questions, identifying problems, and developing solutions. In this way, multiple teachers can provide insights and coach students. This can have the added benefit of building a coalition of solutionaries (teachers and students) in a single school.

Many times, however, individual teachers are on their own, wondering how to support students to deepen their thinking and widen their perspectives relative to issues facing our world. Below are some ideas for beginning to explore issues and problems through learning in a specific content area.

THROUGH LANGUAGE ARTS

"Have students explore and write about how social change has happened."

- Offer books, articles, and stories to students about various issues of concern, including human rights, environmental preservation, and animal protection. Allow them to choose readings for an assignment with the goal of identifying those issues of deepest concern to them personally.

- Have students write about why a particular issue concerns them. What is it about the issue that inspires them to want to help?

- Have students learn about an issue by seeking out media representing a variety of different perspectives. Help them find media that spans the spectrum of viewpoints on that issue and to fact-check any statements, statistics, and images that are presented as factual. Invite students to then craft their own perspectives after carefully assessing these media and the information presented.

All of these suggestions can be implemented as part of any unit that includes a focus on research, writing, and presentation.

THROUGH SOCIAL STUDIES/HISTORY

- Invite students to identify which topics in social studies and/or history have had the biggest impact on them. From there, have them identify current manifestations of that topic (you may need to help with this). For example, some students might be strongly impacted by what they've learned about slavery. While the African slave trade has been outlawed, there are many current forms of slavery around the world, and systemic racism persists. Other students might be aghast when they learn about the Holocaust, and they could explore what current forms of anti-Semitism continue, and what other religious, ethnic, or racial prejudices have increased in recent decades?

- Have students explore and write about how social change has happened. What atrocities were legal and commonplace in the past that are illegal today? What progress has been made, and what can we learn from it that could be applied today?

- Invite guest speakers to your classroom, including experts in various arenas and community stakeholders, and/or have students interview experts and activists (in person or through video conference technologies.

THROUGH BIOLOGY AND ENVIRONMENTAL SCIENCE

- Teach about climate change and its impact on the ocean (rising sea levels, coral bleaching, dissolved oxygen levels); weather patterns (floods, droughts, bigger storms); synchronicity of food sources and migrating animal species (as plant species are no longer adapted to their changing habitat); human migration (as various areas become unlivable); and increasing rates of extinction of both plants and animals.

- Explore hunting, trapping, and fishing policies as well as poaching and wildlife control and their increasing impacts on wildlife populations (as well as individual animals) in a unit about ecosystems.

- Have students learn about the impacts of pollution in their own communities, from water pollution due to fertilizers, pesticides, and industrial chemicals to air pollution from local industries and/or weather patterns that bring polluted air from areas far away.*

"These actions may ultimately become the solutionary work that they'll conduct..."

*You may find IHE's Solutionary Unit, which explores the connections between the primary causes of death of people in the U.S. and the dead zone in the Gulf of Mexico, useful.

THROUGH FOREIGN LANGUAGE STUDY

- Learning another language can almost always be made more interesting and compelling by learning about the experiences and challenges of the people living where that language is spoken. These might include issues that plague many nations, such as deforestation, poverty, climate change, government oppression, violence, child labor, etc. While learning about other cultures should obviously include the positive experiences and unique aspects of those societies, as solutionaries-in-training, using emerging language skills to help solve problems is a wonderful way to engage students in both learning the language and cultivating their solutionary practice.

- For those students learning Spanish, immigration in the U.S. is a big issue that can be brought to light, made more nuanced, and offered as a topic for solutionary thinking (as opposed to the typical pro or con conversations on the issue).

- Invite native speakers to share their stories with your students. Why did they leave their country of origin? What challenges do they face as immigrants or refugees?

THROUGH MATHEMATICS AND STATISTICS

- Offer math problems in the context of solving real-world issues, such as: How much water does it take to produce various foods we eat? How many gallons of water does it take to produce one 8-ounce plastic bottle of water? As well as questions such as: How can statistics be misleading? (You'll find resources for this in the resource section of this guidebook.)

- What are current rates of soil erosion in a specific region and what are the likely trends in 5, 10, 15 years at current rates if sustainable agriculture isn't adopted?

- Scientists suggest that atmospheric carbon dioxide should be reduced to below 400 parts per million (ppm) to prevent significant environmental consequences. Where does this number come from? What are current levels? What kinds of actions would be needed to comply with this reduction?

"Offer math problems in the context of solving real-world issues..."

> **"Art is a powerful vehicle for sharing stories, expressing and sparking emotions, and creating change."**

THROUGH COMPUTER SCIENCE

- Help students explore computer programs and apps that have real-world, positive applications to learn how computer science is being used to address problems. By using Scratch (grades 3-5), Python (grades 6-8), and Java (grades 9-12), students can code their own simulations and apps.

- Research how computer algorithms keep people siloed and perpetually reinforce their beliefs and mindsets through confirmation bias.

- Study emerging technologies and their impact on people, animals, and the environment.

THROUGH ART, THEATER, DANCE, SPOKEN WORD

Art is a powerful vehicle for sharing stories, expressing and sparking emotions, and creating change. The arts also provide an important (and often profound) process for dealing with the psychological distress (and sometimes trauma) that can arise with exposure to atrocities, cruelty, and environmental destruction.

- Explore Activist Art that introduces a range of issues such as the Americans Who Tell The Truth Portrait series, which has a section on changemakers using the arts, and have students research various forms of art (visual, dramatic, spoken, written, movement) that promote positive change. Then invite students to use their own forms of creative expression for solutionary work, including song-writing, spoken word, visual arts, playwriting, and choreography.

- Advertising can be a vehicle for not only selling products but for education about current issues. Explore ad campaigns like these that have a social message as well as ad spoofs and anti-ads from organizations like Adbusters. Students can then design their own solutionary ad campaigns.

- Provide space for expressing whatever emotions arise from learning about problems and suffering in the world through poetry, songwriting, playwriting, painting, collage, ceramics, etc.

PART 2: HOW

THROUGH INQUIRY LEARNING

Inquiry Learning is not a specific content area, of course, but rather an approach that can be brought to all content areas. Provocative, powerful, purposeful questions can drive research, thinking, and action. Below are some examples:

- What do the primary causes of death of people in the U.S. have to do with the dead zone in the Gulf of Mexico? (The Institute for Humane Education has produced a Solutionary Unit exploring this question.)

- How can we ensure that everyone has access to clean water?

- Why do people have such a difficult time thinking about long-term consequences of actions, and how might we make long-term thinking more common?

It is also helpful in Step 2 that you begin to share stories about people who are working to address specific problems, especially young people. Sharing issues of concern can be overwhelming as discussed in Part 1 of this Guide. It is good to inspire students by letting them know that there are a lot of young people helping to make the world a better place. You might want to offer a "good news" class or weekly "solutionary announcements" during which you share positive actions and outcomes happening in your community, nation, and/or world. You can create a bulletin board depicting "the Solutionary Scene" that includes pictures, stories, phases of the Solutionary Framework, etc. You may want to explore the Stories of Solutionaries and Changemakers (via Pinterest) to see what challenges other people are addressing and highlight changemakers that might resonate with your students.

Remind students that they will think about addressing root causes leading to local manifestations of a larger issue and are not responsible for coming up with a definitive MOGO solution to a global issue.

NOTE: If you are searching for ways to help your students learn about issues facing people, animals and the planet, there are many good resources that have been developed in conjunction with the UN Sustainable Development Goals (SDGs) and its mandate to have all students experience education for sustainable development (ESD). These include The World's Largest Lesson, Teach SDGs, and Education for Sustainable Development (UNESCO).

> **"Start with an actual problem and not a project."**

2. Identify a specific problem you care about solving

Through step 2, students will be exposed to many different issues (local and global). Now is the time to identify a specific problem to address and solve. Ideally, students will choose a problem of concern to them personally. While you may need to guide problem identification to meet your curricular goals, try to allow as much leeway as possible, so that your students can focus on the issues they care most about.

When helping your students choose a problem to address, be sure to:

Guide students toward problems that are developmentally appropriate for them, and which they can successfully address in the time frame provided.

Start with an actual problem and not a project. (In other words, avoid deciding, "We're going to create a school garden" or "We're going to draft a policy proposal for our town" before you/your students have identified and analyzed the problem you intend to solve.)

IDEAS FOR INTRODUCING PROBLEMS

> "...allow as much leeway as possible, so that your students can focus on the issues they care most about."

WHAT TEACHERS CAN DO	WHAT STUDENTS CAN DO
• Invite guest speakers to talk about topics of concern in your community and in the world. • Ask your students to read stories or news articles on specific topics. • Go on a field trip to investigate a topic directly. • Show video clips.	• Brainstorm "What local or global challenges most concern me?" • Scan the news for issues of interest.

PART 2: HOW

WHAT TEACHERS AND STUDENTS CAN DO TOGETHER

- Investigate IHE's global issues guides on our Pinterest page.
- Explore the Stories of Solutionaries and Changemakers (via Pinterest) to see what challenges other people are addressing.
- Discuss the Sample Categories of Global Ethical Problems chart (see below) with students, and do a little investigating to find out which problem(s) you want to address.
- Explore the United Nations Sustainable Development Goals.
- Visit the Americans Who Tell the Truth online Portrait Gallery to find out about contemporary and historically significant activists who have addressed the pressing issues of their day.
- Use 360° photography to do a virtual reality field trip. See Google Expeditions for a free app and free expeditions all over the world.
- Physically map your school/community and identify problems on the map. Then visualize the ideal eco-friendly, socially just, and humane version of your school/community. Identify the gaps between the ideal vision and current status.
- Look at comprehensive or strategic plans in your community (city, town, region) that include local projects affecting citizens, animals, and/or the environment. Are there sustainability and economic goals that students could connect to? Students can collaborate across grade levels, school districts, and even across the globe through distance-learning technologies.

To help students think about problems, and how we each have the capacity to create positive change, you can engage them in this activity:

On a whiteboard or similar platform, invite students to answer each of these questions:

- What are the biggest problems in the world?
- What problems do I care most about?
- What skills and talents can I bring to bear on these problems?

Having both a global and local perspective will help you and your students determine what problems you can successfully address within your timeframe.

Note: If, after this activity, you feel that students are feeling disempowered, overwhelmed, or indifferent rather than empowered, consider using this guided visualization to help students imagine a better world and their part in creating it. You may also want to have students engage in a Power Chat to help them clarify their thinking and potentially inspire each other.

PART 2: HOW

WHAT ARE THE BIGGEST PROBLEMS IN THE WORLD?

WHAT PROBLEMS DO YOU CARE MOST ABOUT?

WHAT SKILLS & TALENTS CAN YOU BRING TO BEAR ON THESE PROBLEMS?

war genocide violence animal exploitation & cruelty pollution LGBTG rights passionate animal cruelty child abuse lack of access to quality education patience patience literacy artistic empathy habitat loss good vegan cook slavery polar bears apathy women's rights overpopulation good educator suffering greed organized materialism extinction environment promote health conflict resolution sincerity us vs. them mentality loss of compassion overpopulation corruption shifting values sense of humor no place for elderly sickness & disease homelessness partisanship writing ability live life as example

Here are just some of the problems that student groups doing solutionary units have tackled:

– Local watershed health
– Ocean dead zones
– Plastics in the ocean
– Poaching
– Girls' self-image
– Prison reform
– Racism in schools
– School discipline systems
– Sex trafficking
– Animals used in entertainment

– Water scarcity
– Decline in pollinators
– Suicide
– Obesity
– Youth with incarcerated parents
– LGBTQ+ rights
– Elder abuse
– Factory Farming
– Immigrant voting rights

- Lead in the local soil
– Product testing on animals
– Deforestation
– Racism in sports
– Gender inequity
– Animal cruelty
– Bullying in schools
– Cheating in schools
– Coral bleaching

You can find more potential topics in IHE's Pinterest boards (focused on global ethical issues and relevant skills) and our Sample Categories of Global Ethical Problems and Opportunities

Students might work as a whole group to address the same problem; in small groups or pairs to investigate problems connected to the curriculum or by themselves, depending on the age and readiness of your students to do this work.

PART 2: HOW

EXAMPLES OF BIG PROBLEMS (IN NO PARTICULAR ORDER)	EXAMPLES OF LOCAL MANIFESTATIONS	POSSIBLE WAYS TO FRAME THE PROBLEM
Climate change: Affects everyone – people, animals, ecosystems. Virtually all societal systems, nations, and individuals are impacted and, to greater and lesser degrees, are perpetuating the problem. Poses an existential threat to many species and many communities and is creating climate refugees and causing increased fires, droughts, floods, heat, storms, coral bleaching, and desertification.	• Carbon-intensive food in cafeteria • Single-use disposable items in cafeteria and vending machines • School energy not from renewable sources • Lack of convenient public transportation options in our community	• How can we reduce our school's carbon footprint? • How could we encourage ride sharing and more use of bicycles/walking/electric vehicles? • How can we eliminate single-use items in our school? • How can we help our community to mitigate/become more prepared to face the impacts of climate change? • How can we get our cafeteria food to be mostly plant-based?
Modern day animal agriculture (factory farming): Responsible for extreme animal cruelty, pollution, soil erosion, dead zones, antibiotic resistance, and ill health among consumers. Slaughterhouse work is among the most dangerous jobs in the U.S. with severe injuries commonplace. One of the biggest contributors to climate change.	• Factory farmed products in cafeteria • Lack of access to affordable non-factory farmed foods in the neighborhood. • Lack of awareness about the impacts of factory farming so that students/families can make different dietary choices • Few laws to protect farmed animals in the state	• How can we get our cafeteria food to be mostly plant-based? • How can we make more nutritious, non-factory farmed food affordable and available in our community? • How can we educate the public about the cruelties in animal agriculture and promote more plant-based and humane food? • How could we get laws passed making inhumane treatment for farm animals illegal?
Violence (e.g. war, genocide, domestic violence, child abuse, suicide, shootings): Violence is not a new problem, and many forms of violence have declined over time. However, modern weapons and increased depression and suicidality make violent impulses (whether outwardly or inwardly-directed) more lethal.	• Lack of conflict resolution and violence-prevention programs • Ease of getting weapons in our community by those with mental illness • Lack of suicide-prevention programs	• How can we develop, offer, and promote evidence-based conflict resolution and violence prevention programs in our school/community? • How can we collaborate across differing perspectives about gun rights to ensure that mentally-ill people in our community do not have access to weapons? • How can we keep our school safe from violence?
Poverty: Poverty leads to a host of problems including homelessness, malnutrition, lack of access to clean water, lack of access to healthcare, reduced lifespan, etc. The income gap continues to widen and laws continue to favor those who have more resources.	• Poverty, homelessness, and hunger in local community • Lack of access to quality healthcare in local community • Lack of access to healthy food in local community • Lack of access to quality jobs and affordable higher education in local community	• How can we create systems to ensure that excess food and other essentials such as clothing, cars, bikes, and furniture get efficiently redistributed within our community? • How can we ensure that fruits, vegetables, and other healthful foods are available to all in our community? • How can we reduce housing costs and make more affordable housing available in our community?

EXAMPLES OF BIG PROBLEMS (IN NO PARTICULAR ORDER)	EXAMPLES OF LOCAL MANIFESTATIONS	POSSIBLE WAYS TO FRAME THE PROBLEM
Pollution (air, soil water): Particulates, endocrine disruptors, lead, climate change gasses, manure, fertilizer, pesticides, smoke from fires due to climate change, litter, microplastics	• Toxins are leaching into the ground/water supply • Local factory, power plant, or other manufacturing facility is actively polluting • Sludge, pesticides, and/or fertilizers impacting land and water in our community	• How can we outlaw polluting practices in our city/state and compel investment in clean-up initiatives? • How can we influence local industries to retrofit for clean energy and ensure pollution prevention in our community? • How can we ensure that our school is using renewable energy and limiting its waste?
Animal cruelty beyond food production: While most people are opposed to animal cruelty, it is endemic in the clothing, entertainment, research and testing, and wildlife management industries worldwide. Arenas in which animals are being harmed include: trapping/hunting/poaching, experimentation, exotic animal trafficking, poisoning, rodeos/circuses/animal racing, sea parks; clothing and bedding made from fur/leather/down/wool	• Roadside zoo in community • Rodeo or circus coming to town • Sea parks in state • Animal racing in state • Cruel wildlife control programs in community • Lack of state legislation to protect animals from cruelty	• How can we be sure that animals in our community are being treated humanely, and how can we draw attention to the fact if they are not? • How can we stop cruel wildlife control programs in our community? • How could we get laws passed making inhumane treatment of animals illegal? • How can we increase use of cruelty-free beauty, cleaning, and personal care products?
Isms (racism, sexism, classism, ableism, etc.): These "isms" have become embedded in societal systems (to greater and lesser degrees) and have become self-perpetuating within feedback loops that cause them to persist. While efforts to address these "isms" continue, and progress has been and continues to be made, there is much to be done to end these "isms" so they do not perpetuate injustice and inequity.	• These 'isms' show up in school and/or community • Lack of legislation/policy to address local or state forms of structurally-embedded "isms" • Conflation of structural problems with personal bias: lack of education about the differences and opportunities for solving these structural problems	• How is racism (or sexism, classism, ableism, etc.) showing up in our school and what can we do about it? • How can we transform systems in our city/state that still perpetuate racism (or sexism, classism, ableism, etc.)? • How does racism (or sexism, classism, ableism, etc.) perpetuate inequity in our school/community, and what can we do about it?

Phase 2

In Phase 2 of the Solutionary Framework, students will use a variety of strategies and techniques to investigate the problem they have chosen to address as well as find out what other people are doing to solve the problem. Students will seek to answer why the problem persists. To do this, students will uncover root and systemic causes and determine who benefits and who is harmed by the problem and the systems that perpetuate it.

4. Connect with stakeholders and those working to solve the problem

Stakeholders include all those who have a "stake" in the issue at hand. Stakeholders can be humans, other animals, and/or elements of our biosphere. All stakeholders' needs should be sincerely considered when addressing any problem.

The more students connect with those who are affected by the problem, the better they will understand the impacts of the problem. When they connect with stakeholders, they may also learn more about the efforts that have been made to solve the problem in the past and the outcomes of those efforts.

Of course, there are stakeholders from whom we can't get verbal feedback, such as nonhuman animals and ecosystems. In these cases, we recommend that students talk with people who can accurately represent those perspectives, as well as envision for themselves what the needs and interests of those stakeholders are. If students address a local environmental issue or problem related to the suffering of animals, even though these other beings or entities cannot speak, students should be encouraged to witness the impacts of the problem on these important stakeholders.

for themselves what the needs and interests of those stakeholders are. If students address a local environmental issue or problem related to the suffering of animals, even though these other beings or entities cannot speak, students should be encouraged to witness the impacts of the problem on these important stakeholders.

If students are highly motivated to address a problem far removed from where they live, video conferencing technologies can enable them to connect with these stakeholders. This is a wonderful way for young people to gain a global perspective, understand different worldviews and experiences, cultivate their compassion, and diminish stereotyping. (For more ideas on connecting students globally, visit the Happy World Foundation, created by Global Teacher Prize finalist, Akash Patel, IHE's Global Outreach Coordinator.)

Students will often want to address a problem somewhere else in the world, especially if circumstances in their immediate surroundings are generally healthy and positive. When students learn about people in other countries who have no access to clean water, live on less than $1 per day, or are trafficked as slaves, they may be deeply motivated to do something to help. They may not realize that there are people in their own city or county whose water may be polluted, who are living in poverty, and who may be victims of trafficking.

For example, as mentioned earlier, one group of high school students in Maine was particularly concerned about sex trafficking. After learning that this is a global problem, they discovered that there were girls and women who were rescued from sex trafficking in their own state, but who had no resources upon their escape from sex slavery to gain support to move forward with their lives. This group chose to draft legislation to help these girls and women. They addressed a pervasive global issue at the local level where they could understand and serve the stakeholders in their own community.

Some young people will want to address a huge global issue like the climate crisis, which cannot be solved at the local level, but that doesn't mean that locally-focused solutions are not applicable and potentially scalable at a global level.

> "It is common that students will want to address a problem somewhere else in the world."

While we encourage a local focus, we also believe that it's important to support those who want to be engaged at a global level. As Swedish teenage climate change activist Greta Thunberg has been demonstrating, education through platforms like TED, and massive media attention, can have profound impacts and spur global response, which is what many global problems require.

STAKEHOLDERS:

- could be impacted by the problem
- could be impacted by the solution
- could be invested in bringing a solution to fruition
- could be invested in preventing a solution from coming
- to fruition

EXAMPLES OF PROBLEMS AND STAKEHOLDERS

PROBLEM: Lead in city water

Stakeholders with whom to connect:

- Families impacted by lead poisoning
- Engineers
- Legislators
- City Planners
- Medical professionals
- Insurance companies
- Teachers and schools whose students suffer from lead poisoning
- Organizations and individuals working to solve the problem on a local and national level
- Pets or wildlife who drink from the same water supply
- Homeless dogs and cats

PROBLEM: Homeless dogs and cats

Stakeholders with whom to connect:

- Homeless dogs and cats (at shelters, rescue organizations, and foster families)
- Animal Control Officers
- SPCA/animal shelter/rescue personnel
- Pet stores and breeders who profit from producing puppies and kittens for sale
- People who purchase purebred puppies and kittens
- Lobbyists for the pet industry
- Breed rescue groups and individuals
- Organizations and individuals working to solve the problem on a local and national level

"...we also believe that it's important to support those who want to be engaged at a global level."

5. Identify the causes of the problem from systemic structures to psychological factors, worldviews, and mindsets

Identifying the causes of a problem can be like trying to trace a spider web, because there are typically multiple, intersecting causes, rather than a single cause. Exploration of one cause may lead to another. A combination of inquiry and research will uncover even more layers and connections, and soon interconnecting systems will appear. These systems don't exist in a vacuum. They are informed and driven by a variety of psychological/biological factors, values, and mental models.

The image of an iceberg can be helpful in understanding these layered causes. We can think about the exposed part of the iceberg (floating above the water) as the manifestation of a problem. The expression "tip of the iceberg" reminds us that what we don't see is huge. Just as 90% of an iceberg is typically below water and therefore not visible, the causes of problems are often difficult to see.

The "iceberg model" has been used by many systems thinking groups and educators to look at root and systemic causes, and we find it valuable as well. We have modified it to work for the Solutionary Framework.

You may find other systems thinking models and approaches useful, and some may fit different cultural perspectives and traditions better than the iceberg. You'll find many Resources and tools for systems thinking other than the iceberg in the Resources section of this guidebook.

THE ICEBERG MODEL:

The events at the top of the iceberg refer to those problems that we can see. They lie above the surface, visible if we pay attention to them. Under the surface lie the systemic structures, which lead to the events, and below these systems lie the deeper causes, such as psychological/biological factors, mindsets, mental models, worldviews, belief systems, and values that lead us to create the systems that contribute to the problems in question.

Put another way, our beliefs, values, thoughts, worldviews, and psychological/biological factors drive the creation of systems that then drive the creation of the problems we see. If we want to implement systemic change, we need to focus on the deeper causes and the systems we've created.

The most important question to keep asking in the process of identifying causes of problems is "Why?"

For example:
Let's say a group wants to address the problem of Rising rates of type 2 (formerly "adult onset") diabetes among children.

Here's how "why" questions might evolve:

Why has the rate of this condition increased among children?

An initial "why" question should lead to research, and research, in this case, will reveal dietary factors that primarily (though not exclusively) lead to the increased rate of type 2 diabetes.

Then more "why" questions are necessary, such as:

- Why are foods that lead to this condition so prevalent?
- Why are these foods more prevalent among certain groups leading to higher rates of type 2 diabetes among people living in poverty?
- Why are these foods so inexpensive?
- Why are so many of these foods served in schools?
- Why aren't children and their parents taught about the harmful impacts of certain foods?
- Why do we crave many unhealthy foods?

Each "why" question will lead to more research, which will lead to more "why" questions, which will lead to more research. What is revealed through this process are interconnected systemic structures, such as:

- economic systems
- educational systems
- production systems
- agricultural systems
- legal systems
- advertising systems
- political systems
- family systems
- health care systems
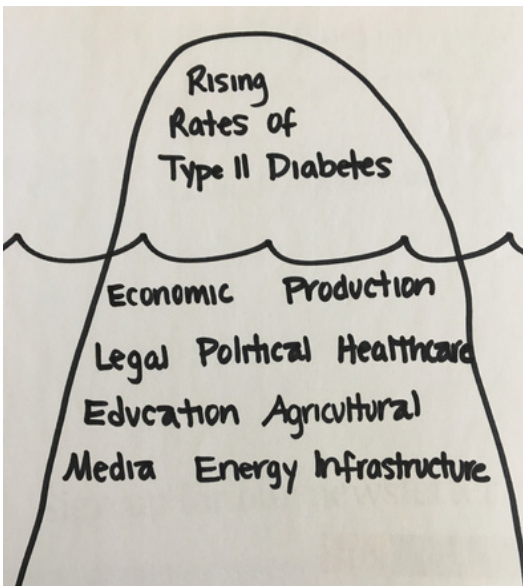
For students new to systems thinking, you may need to help them identify these systems at first.

These systems can be written on the Iceberg model like this.

Asking more "why" questions will lead to uncovering subsystems within those systems, as described below.

For example, ascertaining why fast food and junk food are so inexpensive (so cheap that a fast food burger may cost the same amount as an organic apple!) may lead to research revealing that the water used to irrigate feed crops and livestock, the pasture land, and the fossil fuels used at every level of production, are all subsidized with taxpayer dollars (tax/subsidy subsystem). Without these subsidies, a fast food burger would be quite expensive since its production requires many expensive resources (e.g., fossil fuel, irrigation, animal feed, slaughter, refrigerated transport, marketing, etc.) that comprise subsystems.

Here are some "why" questions that may lead us to discover other subsystems:

- Why do we allow unhealthy foods to be advertised to children? (marketing subsystem)
- Why do we allow corporations to make donations to legislators? (Lobbying, legal, and "corporations as persons" subsystems)

The more questions we can think of related to the different systems, the deeper we will go!

The questions in the previous paragraph were ones that related to media and political systems. We might also ask questions about the health care system, such as:

- Why do hospitals serve unhealthy foods in their cafeterias and to their patients? (USDA and lobbyist subsystems)
- What knowledge do health care providers have about nutrition? How many hours of nutrition science do medical students receive in medical school? (Medical education subsystem)

Now our iceberg looks like this (with subsystems marked in blue).
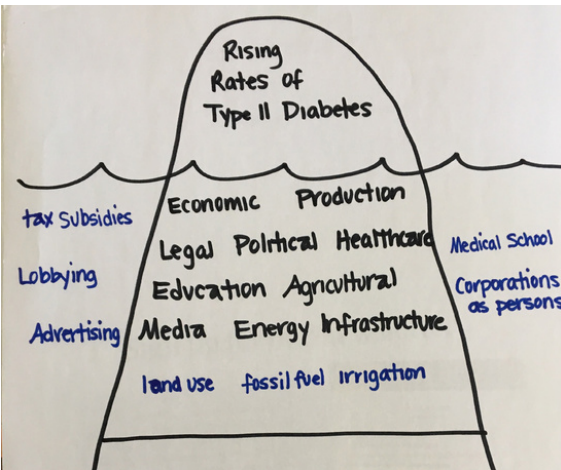
The next step is to draw lines between those systems and subsystems that are linked in some way. What often happens when we ask students what systems are connected to other systems is that they start by saying things like, "the economic system is connected to the political system," or "the agriculture system is connected to the legal system," and before long someone will say, "all the systems are connected." This is almost always the case.

Now our iceberg looks like this.
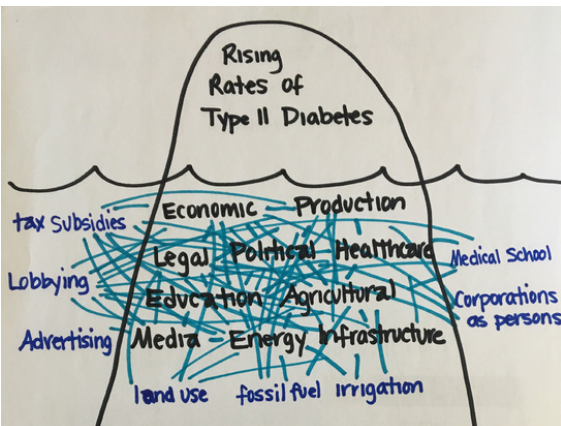
There's so much more we might add, but you get the picture.

We frequently have a hard time seeing current systemic structures in our society as anything other than "normal," "the way of the world," or "universal," because it's hard to imagine different systems. But it's certainly possible that we could live in a culture in which unhealthy, processed, and junk foods weren't subsidized by tax dollars; in which corporations couldn't donate unlimited amounts of money to influence legislators; in which hospitals and schools provided the healthiest possible foods to patients and children; in which the true costs of food production were factored into the cost consumers pay; in which future doctors were taught nutrition science and were focused on preventing disease.

The fact that we don't currently live in such a world is because of the systems and subsystems we've created. To uncover the mental models, psychological factors, worldviews, beliefs, and values that have led to these systems and subsystems we need to ask more questions. Some of the "why" questions above hint at these deeper causal elements, and we can add more:

- Why do we value "free speech" for a corporation (so that they can advertise unhealthy, unsustainable food and offer campaign money to influence legislators) over the health of children? (freedom is one of the highest values in the U.S.)
- Why do we eat foods that we know are unhealthy? (biological cravings for high calorie foods and salt; short-term desires eclipsing long-term thinking)
- Why do we gravitate toward fast food? (convenience; overly busy/limited time; limited funds; fast food culture)
- Why do we overeat? (perhaps in part because we experience nutritional deficits from junk food; food addictions; susceptibility to advertising influences)
- Why have we allowed our tax dollars to subsidize unhealthy, processed, and fast food? (we aren't aware of the subsidies; we don't understand the systems that gave rise to them; our education doesn't include information on food systems; food conglomerates are profit-driven and not public health-driven; we don't want to question low-cost foods)
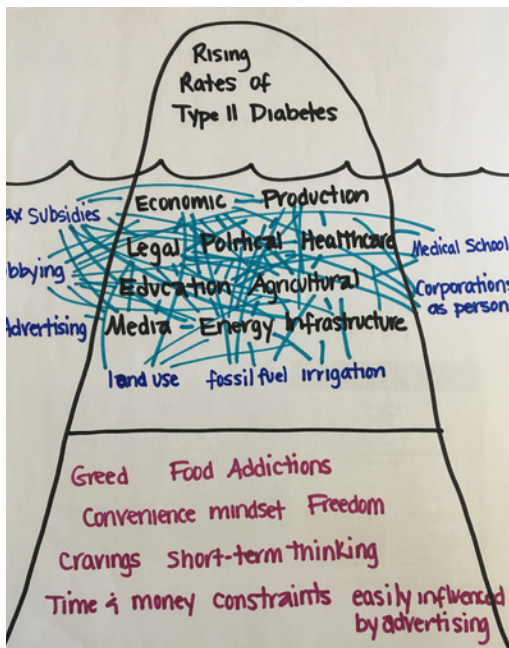
If we put some of these values, psychological factors, and mental models onto the bottom section of our iceberg, it now looks something like this.

"Why" questions aren't the only questions to ask of course. We need to ask "who," "what," and "how" questions, too. In turn, these may also help us ask more probing "why" questions.

If a group of students is working on the same problem, it's helpful to have every member of the group ask their own "why" questions because each will differ. When the students later share their "why" questions and research, they will have an even greater body of knowledge from which to work.

Rising Rates of Type II Diabetes

Tax Subsidies • Economic • Production • Legal • Political • Healthcare • Medical School • Lobbying • Education • Agricultural • Corporations as persons • Advertising • Media • Energy • Infrastructure • Land use • fossil fuel • irrigation

Greed • Food Addictions • Convenience mindset • Freedom • Cravings • Short-term thinking • Time & money constraints • easily influenced by advertising

PART 2: HOW

As students do research to answer questions and understand the causes of the problem, it's essential that they learn to evaluate the credibility of their sources in order to obtain reliable information.

Our Research, Accuracy, Credibility, Bias Toolkit will help you teach your students to conduct careful research. You'll also find useful resources from Project Look Sharp and Stanford. The most important points to remember are these:

TO OBTAIN ACCURATE INFORMATION, ASK:

- Where does the information come from? Is it a reliable primary source? A secondary source?
- Is the information supported by credible evidence? Can I obtain access to that evidence?
- Has the information been peer reviewed?
- Can I verify the information from another credible source?
- What are the author's credentials or organizational affiliations?
- Is the author qualified to write on the topic?
- If the information includes a study, who funded the study?

TO EVALUATE BIAS, ASK:

- What is the purpose of the information? Is there an agenda?
- Do the authors/sponsors make their intentions or purpose clear?
- Is the information fact? Opinion? Propaganda?
- Are there political, ideological, cultural, religious, economic, institutional, or personal views expressed or assumed?
- What are my own biases in regard to the information?

"By definition, stakeholders will have a bias, and solutionaries must be able to evaluate…"

Students will also be asking stakeholders for their perspectives on the causes of the problem, and assessing their responses based on the questions above will be important. By definition, stakeholders will have a bias, and solutionaries must be able to evaluate stakeholder perspectives for accuracy, too.

In this section, we've described only one process for discovering the causes of problems. For more information, tools, and approaches to develop good critical and systems thinking skills, and to understand feedback loops, please see the Resources section of this guidebook.

6. Determine who and what is harmed by the problem, and who and what benefits

At first glance it may be obvious who is harmed by a problem. After all, it's a problem because there's some sort of harm. It's important to dig deeply to understand the range of harms, as well as the range of benefits not only related to the problem itself, but also to the systems contributing to the problem. Doing this will ultimately enable a deeper level of solutionary thinking so that the most solutionary solutions can be developed and successfully implemented.

To continue with the type 2 diabetes example, certainly the children who suffer from this condition are harmed, but the harms extend well beyond those children to include:

- Their families and friends
- Higher health insurance costs for everyone
- Less access to health care due to growing costs

Those impacted by the structures of our food systems that contribute to the problem, including:

- The environment (from the agricultural systems that impact water, soil, and air such as monoculture farming; pesticides and fertilizers; genetically modified organisms; palm oil production; poor conversion ratios of feed to meat/dairy/eggs in animal agriculture leading to wasted resources, etc.)
- Animals (through factory farming agricultural systems that confine and abuse them)
- People (including migrant farm workers not paid a living wage; slaughterhouse workers participating in what is considered one of the most dangerous occupations in the U.S.; children in other countries adopting an American diet, etc.)
- Communities (food deserts where healthy food is hard to obtain, predominantly impacting low-income and often disenfranchised groups; city, suburban, and rural planning and infrastructure that lead to the proliferation of drive-thru fast food franchises and convenience stores; single-use packaging that leads to waste and its associated costs, etc.)

"It's important to dig deeply to understand the range of harms, as well as the range of benefits..."

Once again, the more questions we ask, the more impacts and effects we discover. What at first seemed like a problem that affected a certain (growing) percentage of children turns out to be a problem whose interconnected causes are impacting virtually everyone, along with the ecosystems that sustain all of us!

Thus, we discover that there are many more stakeholders than we may have initially thought, and we can add new stakeholders to our list to connect with and learn from.

It's essential not to stop with identifying the harms even as we explore who is benefiting from the status quo.

Type 2 diabetes is on the rise among children because so many are benefiting from the systems that are contributing to the problem. Unless we identify the stakeholders who are benefiting from these systems, and seek to meet their interests in other ways, our solutions may be less likely to be widely implemented. Beneficiaries of these systems will likely fight to maintain the status quo if they perceive that they will lose their benefits.

Who benefits from the systems that are contributing to the rise in type 2 diabetes among children?

- Corporations that produce the foods that contribute to type 2 diabetes benefit, as do all the investors in those corporations, including people whose retirement accounts may include stock in companies producing fast food, soda, candy, and junk food (whether they know it or not).

- Hospitals and health care providers benefit from increased revenue from sick children.

- Politicians benefit from campaign contributions from corporations producing these foods, pharmaceutical companies (and investors) producing drugs to treat type 2 diabetes, media reliant on advertising dollars, etc.

- Communities benefit from the taxes paid by fast food and convenience stores and the jobs they provide.

"...we discover that there are many more stakeholders than we may have initially thought..."

- Supermarket owners and employees benefit from the sale of these foods because such foods have very high profit margins.

- Advertising agencies benefit from companies who pay them to develop ads for junk food.

- Media benefits from the money from those advertisers.

- The public benefits from "free" media they receive that is funded by advertising dollars.

- Schools benefit from the low cost food provided by the USDA, because schools are often the dumping ground for unhealthy foods. They also benefit from vending machines that sell sodas and junk food.
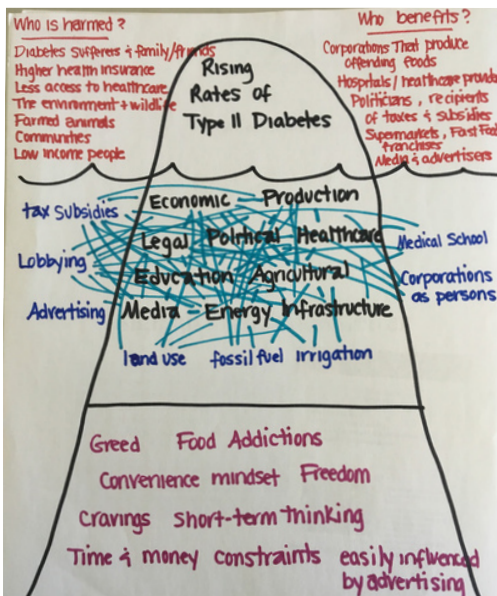
For virtually every problem we identify, we will likely find more stakeholders who are harmed, as well as more beneficiaries than we imagined. The deeper we dig, and the more we discover, the more likely it is that we will eventually be able to devise a strategy, approach, and solution that address at least some of the systems and mindsets in a solutionary way.

If we add our harms and benefits to the top of our iceberg, our iceberg now looks like this.

7. Research what has been done to solve the problem thus far

There's no need to reinvent the wheel if good solutions exist and simply need other solutions for effective implementation. It's also worth avoiding solutions that have already been found to be less effective than expected or have unintended negative consequences.

It's rare that students will choose a problem that no one has sought to solve. As you saw in the above list of problems addressed by students who've participated in IHE's solutionary program, many have been widely reported in the news and tackled by countless NGOs, communities, individuals, and governments.

Nonetheless these problems persist. Often, there is growing awareness about and public sentiment for solving the problem, but the increase in human population and other contributing factors mean that the problem is getting worse despite greater concern and dedication to ending it. In fact, this is true for many problems! This points to the importance of proposing and implementing solutions that are even more solutionary.

When students carefully research what's been done to solve the problem they are looking to address, they will gain the knowledge they need to make a meaningful contribution. Careful research includes analyzing the successes and learning from the failures, talking with those in the forefront of solving the problem, and paying attention to any unintended negative consequences from different approaches that have been tried. This is the work solutionaries must do in step 7 of the Solutionary Framework.

There's a well-known (and somewhat apocryphal) story about the World Health Organization (WHO) trying to solve the problem of malaria in Borneo in the 1950s. The solution was to spray DDT to kill the mosquitoes that carried the parasite that causes malaria. The DDT worked, but it also killed the wasps that controlled populations of thatch-eating caterpillars, so before long there were holes in the thatched roofs of dwellings. Holes can be patched, so that would have been a manageable unintended negative consequence, but then cats started dying. The theory is that the cats died due to high levels of DDT in their bodies from eating lizards who ate insects, thus concentrating the DDT up the food chain. Whether this is entirely accurate is debated, but with the reduction in cats on the island, there was an increase in rats who spread the plague. Now the unintended consequences were severe. The response of the WHO was to parachute crates of cats into Borneo to solve the problem of too many rats. You can watch and share an animated version of this story [here](#). If you show this video, you can also help your students notice and think critically about the stereotypes presented in the depiction of the Dayak people and the rats.

"Let's avoid parachuting cats!" is another way of reminding us to carefully consider the potential unintended consequences of our solutions.

> **"It's rare that students will choose a problem that no one has sought to solve."**

Phase 3

In Phase 3 of the Solutionary Framework, students use critical, systems, strategic and creative thinking to determine what solutions will be high impact, feasible, and MOGO.

8. Devise solutions that address the causes of the problem, and which do the most good and least harm to people, animals, and the environment

Returning to our example of the rise of type 2 diabetes – and assuming we've conducted research to ascertain what's been done to solve the problem thus far, and assessed effectiveness and unintended negative consequences – it's time to think about solutions.

If we want to reduce the rate of type 2 diabetes among children, we know that building more hospitals and encouraging more medical students to go into the specialty of endocrinology will not solve the problem.
We have to address the causes directly and find leverage points where a small change may result in a significant positive impact.

Systems thinking expert, Donella Meadows, wrote in her excellent article, Leverage Points: Places to Intervene in a System: "[Seeking leverage points] is not unique to systems analysis—it's embedded in legend. The silver bullet, the trimtab, the miracle cure, the secret passage, the magic password, the single hero who turns the tide of history. The nearly effortless way to cut through or leap over huge obstacles. We not only want to believe that there are leverage points, we want to know where they are and how to get our hands on them. Leverage points are points of power."

In other words, leverage points are the places we can make changes within a system.

> **"…with the reduction in cats on the island, there was an increase in rats who spread the plague."**

Meadows goes on to write: "Leverage points are not intuitive. Or if they are, we intuitively use them backward, systematically worsening whatever problems we are trying to solve."

What this means is that we have to be careful to deeply assess possible leverage points and potential solutions. Remember, we always have to be aware of potential unintended negative consequences and avoid parachuting cats!

Back to our iceberg model to the right, you'll see we've added the concept of leverage to it.

If one of the deepest causes for the rise in type 2 diabetes stems from our desire for high calorie food, then if someone came up with a solution to the problem of human cravings for such foods, we would not only solve the problem of rising rates of type 2 diabetes, but also a host of other problems.

However, because humans evolved to crave high calorie foods, we may not be successful if we try to leverage this particular deep causal level of our problem when we devise a solution. In other words, as we look for leverage points for creating change, the ones that might theoretically have the biggest impact are not necessarily the ones that we can or should target.

That doesn't mean we should never dive below the systems level to create change, but rather that we should evaluate the likelihood of success based on several factors:

- The potential impact of the leverage point
- The feasibility of a successful solution at that leverage point
- The impact of the forces that may propel the solution forward
- The impact of the forces that might thwart the solution
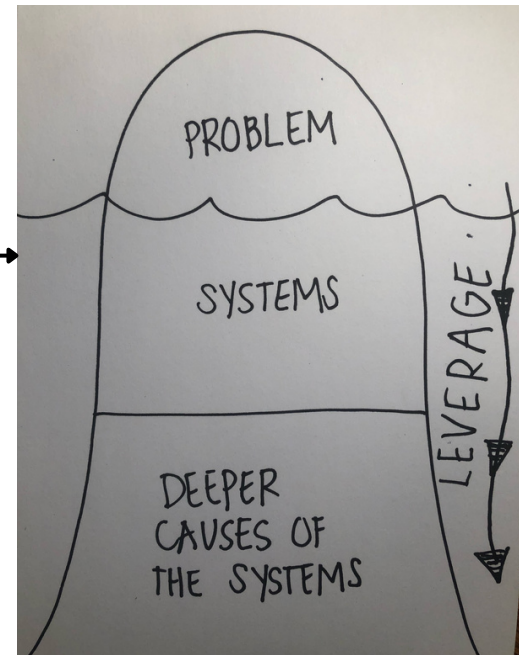
PART 2: HOW

While we may not choose to implement a solution at the points of deepest leverage, it's absolutely worthwhile to consider more than one leverage point and more than one solution per leverage point. This is how we learn how to be successful solutionaries and how we are able to strategize to make good decisions.

You can use the Leverage Points Chart as a tool.

LEVERAGE POINTS AND SOLUTIONS CHART

- Identify leverage points where you think a strategic intervention would be most effective in creating changes that will help solve the problem you identified. Put those in the first column in the chart below.

- Once you have identified your best leverage points, write down as many possible solutions as you can think of in the second column.

- In the third column ask: Does my solution do the most good and least harm to people, animals, and the environment (i.e. is it MOGO). If not, who is harmed and in what ways?

> **"...it's absolutely worthwhile to consider more than one leverage point..."**

What is the leverage point and where is it located? (What are you going to try to change?)	What solutions do I have at this leverage point?	Do my solutions do the most good and least harm to people, animals, and the environment (are they MOGO)? If not, who is harmed and in what ways?

PART 2: HOW

Let's consider this chart in relation to our type 2 diabetes problem:

What is the leverage point and where is it located? (What are you going to try to change?)	What solutions do I have at this leverage point?	Do my solutions do the most good and least harm to people, animals, and the environment (are they MOGO)? If not, who is harmed and in what ways?
Education & lack of information (people aren't aware of the systems that make unhealthy food prevalent or that their tax dollars subsidize these systems) Located at both the systems and the deepest level on the iceberg	1. Produce an educational video that reveals how subsidies keep unhealthy foods low in cost, with a call to action to contact legislators. 2. Write a blog post about tax subsidies for unhealthy foods and their negative impacts, with a call to action to contact legislators. Create a presentation to share with others. 3. Create a presentation to share with others. 4. Work at the school level to educate the school community and/or educate/influence the school cafeteria to serve only healthy foods; and/or develop curricula on healthy eating.	Yes. Education about this subsidy system could lead to action on both an individual and systems level that helps solve the problem in ways that are ultimately beneficial to all. Working at the school level could be replicable to other schools and gain media attention spreading the message.
Legislation Located at the systems level (legislative/political/ economic/agricultural/ energy systems)	1. Draft legislation to make it illegal to advertise junk and fast food to children. 2. Draft legislation to change the Farm Bill to stop subsidies of unhealthy foods and destructive/unhealthy agricultural systems. 3. Draft legislation to stop subsidies for fossil fuels.	Generally and overall, yes. Advertisers, media, big agriculture, and fossil fuel industries will be affected. Since people still have to eat, they will need energy. Advertising will continue. These impacts will represent shifts that may support others, evening out any harms. Overall, very MOGO.
Healthcare Located at the systems level	1. Create a campaign to get all medical schools to offer nutrition education. 2. Create a campaign to get hospitals (or our local hospitals) to serve only healthy, mostly plant- based foods in the cafeteria and to patients. 3. Create a campaign and messaging for health care organizations to share info on healthy, mostly plant-based diets.	**Yes**

9. Determine which solutions are most solutionary and most feasible for implementation

Devising solutions is one step in the process; determining which solutions are most feasible for implementation is another. There are many factors to consider when it comes to implementation, and the most solutionary ideas may not be the ones that students are able to implement because of time, resources, and expertise. However, it is helpful for you and your students to identify multiple solutionary solutions, even if you are unable to implement them yourselves. The process itself enables students to practice solutionary thinking and deepen learning.

Here again is our scale for assessing the solutions that are generated:

EMERGING	DEVELOPING	SOLUTIONARY	MOST SOLUTIONARY
The solution, while well-intentioned, does not yet address root and/or systemic causes (and may produce unintended negative consequences to people, animals, or the environment).	The solution addresses root and/or systemic causes but produces unintended negative consequences to people, animals, or the environment.	The solution addresses root and/or systemic causes and strives not to produce unintended negative consequences to people, animals, or the environment.	The solution **significantly and strategically** addresses root and/or systemic causes and does not harm people, animals, or the environment.

Remember that it's possible to choose a solution that someone else has come up with, but which hasn't yet become widespread and isn't being implemented as it could and should be. The most solutionary solutions may offer new ideas for implementation and scaling of others' ideas.

Once students have a handful of best ideas, they can use a chart like the one below to ascertain what solution will ultimately be the most solutionary for them to pursue. As their teacher you can – and should – encourage your students to share all their best solutions with others, because the best solutions may be possible for another group to carry out. But you want students to be sure to choose the one that makes the most sense to implement at this time.

PART 2: HOW

Possible solution	Who/What benefits from this solution?	Who/What could be harmed from this solution? What are possible unintended negative consequences on people, animals, or the environment?	Where does the solution fall on the solutionary scale?	Is the solution feasible for me to implement?	What time and resources are necessary to implement this solution?	Do I want to pursue this solution? Is it a good use of my talents and interests?

Here's what part of our chart looks like for our type 2 diabetes problem:

Possible solution	Who/What benefits from this solution?	Who/What could be harmed from this solution? What are possible unintended negative consequences on people, animals, or the environment?	Where does the solution fall on the solutionary scale?	Is the solution feasible for me to implement?	What time and resources are necessary to implement this solution?	Do I want to pursue this solution? Is it a good use of my talents and interests?
Legislation to end subsidies for land, water, and fossil fuels for agricultural practices that contribute to type 2 diabetes	People who are made ill (because the cost of fast food/junk food is so low, consumption increases). Animals suffering on factory farms. The environment, because subsidies perpetuate destructive practices and reduce shifts to clean energy and sustainable agriculture.	Costs of some foods will go up so food will be more expensive for consumers. Sellers of soda, candy, junk, and fast foods will be affected negatively, and profits will go down, potentially impacting investors and retirement accounts. Media and advertising companies may be affected if these foods aren't advertised as much. Nonetheless, people still have to eat, and there is money to be made selling and advertising healthful foods.	Solutionary	We can definitely write the legislation and find some sponsors/co-sponsors, but without large-scale collaboration and media attention, this legislation probably won't go anywhere in Congress, because the corporations benefiting from the status quo fund legislators and have a lot of power. Without addressing the underlying campaign finance system, our approach may not be successful.	Many weeks/months of meeting with legislators to understand the best methods for drafting legislation of this kind; more meetings to influence other legislators to co-sponsor. A large machine of activists/lobbyists to gain traction. Much work and collaboration to get media attention. Potentially years of work.	We want to pursue this because it's solutionary and important, but we don't have a lot of faith we'll be successful. However, the process of doing this work will be important and potentially far-reaching, and of all our ideas it's the most solutionary. It NEEDS to happen.

Taking the time to go through all of the solutions generated and completing the chart helps tremendously when homing in on which solution to pursue and implement. Paying close attention to the unintended negative consequences is also critical. Often the most solutionary solutions will have the biggest potential backlash and be the hardest to implement (e.g., our legislative solutionary idea above). Remember, people
are profiting from destructive, inhumane, and unhealthy systems, which is why things like subsidies for unhealthy foods and unsustainable agricultural systems continue.

This doesn't mean we shouldn't pursue the most solutionary solutions. Rather, we need to be prepared.

After completing the chart and considering all the options, decide on a solution to pursue. (Note: The chart completed by the students will have all options. For the purposes of illustration, we have included only one here.)

Based on our analysis, we need to decide whether we'd rather push toward a big, more solutionary approach, even if we don't initially succeed. Or, maybe we should pursue an easier approach that we know won't have a huge impact, but which will allow us to experience a level of success that inspires us to continue to the next level. We can share our medically-related solutions with a medical advocacy group and diabetes educators, since we won't be pursuing it ourselves.

10. Create a plan to implement your solution

Planning is key to the successful implementation of a solution. While it may not be possible for students to implement their plan within the constraints of school it's important that they experience the planning process and **get feedback on both their solution and their plans for implementing it.**

Feedback at this point is critical to supporting students to ensure that both the solution and the plan for implementing it are on point. Without this step, students don't get the practice they need to truly become solutionaries.

"...it's important that they experience the planning process and get feedback on both their solution and their plans"

PART 2: HOW

Even if students can't implement their solution as a part of school, that doesn't mean they can't or won't implement it outside of school. Either way, they'll need a plan.

The chart below will help your students plan for implementation of their solutions. Note that the long-term goal that they write down may not be achievable in the near future, but their measurable objectives should be. This will help them see in a concrete way what outcomes they are aiming for.

Prior to using this chart, please pause to prepare and inspire your students for this next step.

Before writing measurable objectives:
Invite your students to fully envision how their school, community, nation, and/or world will be different when their long-term goals are realized. How will people, animals, and the environment benefit from their solutionary solution? What will success look like?

Let them live into this vision with excitement, because they are about to make a plan to create positive change, and this may be the first time they've done this in their lives. Invite them to celebrate the fact that they've already come this far!

Before describing baseline status and evidence of success:
Invite your students to zoom out and observe what they've done so far and allow them to take a creative approach to completing this next step. They might want to sketch out their process in a new way (e.g., create a large visual timeline, a collaborative mural, or a shared digital tool) – something they can use to establish the baseline of their problem and measure success as they move into and through Phase 4 of the Solutionary Framework.

Bring excitement to this:
Explain to the students that the "baseline status" of the problem they are addressing will provide the starting point for a comparison so they can measure the impact of what they have accomplished once they have implemented their plan

> **"Let them live into this vision with excitement, because they are about to make a plan..."**

REMEMBER:
The students are now prepared to practice being solutionaries. Give them as much support as you can, while also stepping back so they have a chance to develop agency and build a coalition of changemakers within their groups. This is the fun part! You have set them up for success, and even when they might think they've "failed," the process reminds them that failure is key to eventual success. Encourage them to pay as much attention to what goes wrong as what goes right, and to document this on the tool they create. They are activating and putting into use the process you've taught them.

Long-term Goal:	Measurable Objective(s): What changes will have been made relative to your goal (keeping the iceberg in mind)? You can use the goal-setting strategy SMARTR: Specific, Measurable, Attainable, Relevant, Time or event-bound, with a plan to Re-evaluate and Reflect. Baseline status and evidence of success: What does the aspect of the problem you're addressing look like now, before you begin implementing your solution? Be specific about how you plan to measure your success: what will the indicators be and how will those indicators be represented in the progress tool? For example, if you choose a long-term goal such as "reverse global warming," with a plan to draft and pass legislation in your town or city to reduce energy consumption by a certain percentage, you will be measuring the change in energy consumption in your town, not the overall reduction of CO_2 in the atmosphere. If your plan is educational in nature, you can measure how many people were exposed to your educational efforts and poll them to learn about the effects the educational campaign had on public awareness and behavior.				
Action Steps (Be specific)	**Individuals Involved** (Including stakeholders)	**Resources Needed**	**Timeline** (Date by which the action should be completed)	**Potential Difficulties**	**What does success look like and how will we evaluate it?**

Here's what our chart looks like, having chosen to pursue our second solution:

Legislation To End Subsidies For Land, Water, And Fossil Fuels For Large-Scale Agriculture

Long-term Goal: To make all foods healthy, sustainable, and humanely produced.	Measurable Objective(s): To have Congress ends subsidies to agricultural practices that contribute to Type 2 diabetes, as well as land and water pollution. Baseline status and evidence of success: Industrial agriculture is subsidized by taxpayers, which keeps unsustainable foods and practices inexpensive so that the true cost of these foods are not passed to consumers. Meanwhile, locally, sustainably grown foods are not subsidized, making the healthy option harder to access.				
Action Steps	**Individuals Involved**	**Resources Needed**	**Timeline**	**Potential Difficulties**	**What does success look like and how will we evaluate it?**
(1) Schedule calls with legislators on Senate & House committees in Agriculture, Energy, Natural Resources, & Health. (2) Question validity of subsidies and request support in drafting new legislation. (3) Determine legislative history. For instance, if previous efforts were made to repeal harmful subsidies and why these might have failed.	Team members; teachers and mentors (to review questions); senators and representatives; congressional staff.	Phone, internet, computers, basic software.	Meetings with senators in 2 weeks.	(1) Getting to actually speak to legislators. (2) Getting support to create new legislation.	We were able to speak with and obtain necessary information from legislators, and some were enthusiastic about working with us to achieve our goal. We will evaluate our success by answering the following: Were we able to speak with legislators? Did they answer questions thoroughly? Do we understand what our next steps will be? Do we have enough information to move to the next step?
Draft legislation with help of senators, representatives, and congressional staff.	Team members; teachers and mentors; senators and representatives; congressional staff.	Phone, internet, computers, basic software.	Weeks to a month.	Lack of previous bills to serve as template for new legislation.	Draft of solid bill.
(1) Share draft bill with legislators for feedback and potential introduction/sponsorship/co-sponsorship. (2) Create campaign to garner support and inspire others to contact legislators.	Team members; teachers and mentors; legislators and staff; activists; reporters and media specialists; supportive healthcare providers for Type 2 diabetes patients.	Phone, internet, computers, basic software; meeting space.	(1) As soon as a draft bill is written. (2) Ongoing (months to a year).	(1) Disinterest from legislators. (2) Lobbying and pushback from industrial agriculture. (3) Length of process and media support. (4) Lack of interest from stakeholders, such as Type 2 diabetes patients.	(1) Participation and support of legislators, stakeholders, and the media. (2) Greater awareness of the issues even if a bill is not passed.

PART 2: HOW

As you can see from our action plan above, choosing to implement a solution on a national scale is huge, time-consuming, and requires long-term dedication. We chose to illustrate an action plan at this scale to provide a reality check for implementation feasibility. We also chose to illustrate a large-scale solution because we want you to imagine what it would be like to commit to a year-long (or multi-year) effort such as this.

The process of creating an outline will help you understand what is involved in your big goals and dreams. Had we chosen to implement our ban on junk and processed food in the school cafeteria, our plan might still take time, but it would be more likely to meet with success that we could build upon.

Here's what our chart might look like for the more manageable goal of banning junk and unhealthy processed food in the school cafeteria:

Long-term Goal: Our school cafeteria will not only stop serving unhealthy and junk foods, but will be a model for other schools to follow so that our solution spreads far and wide.	Measurable Objective(s): Our school cafeteria will stop serving unhealthy and junk foods by the beginning of the next school year. Baseline status and evidence of success: Currently, our cafeteria serves many unhealthful foods, from chips and candy to hot dogs and burgers with processed white flour buns. They also serve sugary drinks. We have few truly healthful options. Success will mean that the cafeteria no longer serves packaged junk foods and beverages or meals that are high in saturated fat, processed sugar, and sodium. There will be a variety of delicious, whole, unprocessed, plant- based foods - both fresh and cooked - available every day.				
Action Steps	**Individuals Involved**	**Resources Needed**	**Timeline**	**Potential Difficulties**	**What does success look like and how will we evaluate it?**
We will meet with those in charge of food services at our school to discuss our goals and present our data to support the need for healthful foods in the cafeteria. We will present our suggestions for eliminating certain unhealthful foods and serving more healthful foods, based on our research into government requirements for school cafeterias.	School administrators/ food service personnel.	Time and flexibility.	Within a week of completing our solutionary work.	We have no control over whether they will be amenable to hearing our perspective and working with us. We may face resistance if they believe that our suggestions are: costlier, less likely to be eaten by students who are used to other, less healthy foods.	Success looks like this: We have a first meeting that is positive and collaborative. Personnel are excited to work with us to improve offerings in the cafeteria and to stop serving foods and beverages that cause harm.
Based on the success of the first meeting, we will take whatever action steps are asked of us (e.g., research, education of students, polling of students).	Potentially, we will be working with many constituents in the school to gain support for our initiative.	Time, communication skills, research skills.	To be determined (TBD) based on discussions with the food-service personnel and decision-makers.	We may face resistance from fellow students who prefer pizza, burgers, chips, and sugary desserts and beverages.	Success looks like this: We have consensus in our school community that healthy foods are desired, and unhealthy foods should no longer be served. We have the support of food service to implement the suggestions. We will evaluate success based on the food service changes during the next school year.

As their teacher, you'll be providing feedback on your students' solutions and their plans for implementation. It will also be extremely helpful to them if they can get feedback from experts, stakeholders, and community members, as well as activists/advocates who've been working on the issue they're addressing. They can then adjust their planning accordingly before moving on to implementation and sharing. This process helps students, and their community, take their power as solutionaries seriously.

ALTERNATIVE APPROACH TO CHOOSING A SINGLE SOLUTION TO PURSUE

It is possible that students will want to pursue different solutions. Instead of having students work on one solution, you could invite groups or individuals within the class to work on all four solutions, and then share their experiences and learnings with each other – like various departments in a solutionary organization.

Phase 4

You and your students have arrived at the point of implementation. If at all possible, it is very important that students are supported to implement at least part of their solution. Because solutionary work is process-based, without markers and a roadmap it may seem to students as if there is no end in sight. That is why it is essential to review, reflect, communicate, share ideas, iterate, and celebrate after initial implementation.

11. Implement your solution

To the greatest degree possible, and as mentioned earlier, **we encourage you to find ways to make it possible for students to implement solutions during class time and within the context of their schooling.**
Their implementation experiences will help them grow as solutionaries, learn from mistakes, and discover flaws in their planning and thinking that enable them to improve dramatically as they continue their work. Plus, implementation builds real-world accomplishments, confidence, and motivation to continue to try to make a difference.

"...we encourage you to find ways to make it possible for students to implement solutions during class time"

The feasibility of implementation obviously depends on many factors: the kinds of solutions that are being implemented (e.g., whether they are hands-on in the community or completed primarily through time on a computer, in a makerspace, art studio, or other part of school grounds); whether they are being implemented by collaborative teams or individually, etc.

We know that this step may be the most challenging to fit into the curriculum. While students can potentially implement solutions as part of an after-school club initiative, or outside of class time, ideally they would be able to implement their solution as part of their curriculum.

However, as we expressed at the beginning of this guidebook, what is of greatest importance is not success at implementing a specific solution, but rather gaining the ability to bring solutionary thinking and practices to issues and problems students encounter throughout their lives and through their future professions.

"...gaining the ability to bring solutionary thinking and practices to issues and problems students encounter..."

12. Present your work

Presenting solutionary work is a very powerful way to augment solutionary efforts. It is the culmination of students' hard work and might be the first time they are proposing or implementing a solution of their own design in a public or videotaped forum. It's an occasion for the whole school to celebrate; a chance to invite parents and community members; an opportunity for students to shine! **Sharing what has been learned, proposed, and accomplished educates others, which is solutionary in and of itself because education sparks others' solutionary thinking and actions.**

For schools, hosting a Solutionary Summit or Solutionary Fair can be of great value to students, teachers, and community members. Providing a forum for students to showcase their accomplishments allows them to join forces with and learn from other solutionary teams (empowering to students).There are additional benefits, too: for teachers can assess student learning and improve the process; families from different towns or schools can be inspired and connected through the solutionary engagement of their children; and community members can learn about ideas and pathways for solving real-world challenges.

PART 2: HOW

> **"Several schools, school districts and school networks have begun to hold Solutionary Fairs.."**

IHE has hosted three Solutionary Summits, and you can find information about planning and executing such a summit in this [toolkit](). Several schools, school districts and school networks have begun to hold Solutionary Fairs, including San Mateo County, CA and Oceanside School District on Long Island, NY in the U.S., a school in India, and a network of international schools in Germany.

ADDITIONAL OPPORTUNITY TO SHOWCASE STUDENTS' SOLUTIONARY SOLUTIONS

IHE's Solutionary YouTube channel will share solutionary solutions to problems. To submit a video for potential inclusion on this channel, please follow the guidelines for presentations below and send us a link to your video(s). (You can also follow these guidelines for your school's Solutionary Summit or Solutionary Fair presentations.)

The videotaped presentation should include both verbal and visual elements. The verbal presentation may be a voiceover accompanying the images, or the entire presentation could be filmed live with the projected images clearly visible.

VERBAL PRESENTATION SHOULD INCLUDE:

- A clear and concise problem statement; the systemic and deeper causes underlying the problem; who/what is harmed and who/what benefits from the problem's continuation and the systems that perpetuate it.
- A statement of what the most solutionary solution(s) would be to solve the problem (even if you were unable to implement this solution).
- If you were able to implement one of your solutions, a description of why you chose your approach, and what you did.
- How you measured or will measure the impact of your solution.
- Citations for your research.
- A short statement from each team member saying how this learning has impacted them.

FOR A SLIDESHOW ACCOMPANYING VIDEOTAPED PRESENTATIONS:

- Text should be the minimum needed and students should not read text from the screen. For students producing a video with voiceover, the text may augment and/or substitute for some of the voiceover.
- Images should be high-resolution.
- Any images, diagrams, etc., used should follow appropriate copyright guidelines.

If students/groups plan to continue their work or pass it on to other students in their school or community to implement, and if they have the support of their school/institution and teachers/mentors to oversee deeper or more extensive implementation, they are invited to submit a written proposal for funding up to $1,000.

Accompanying their video submission should be three adult references from mentors/teachers/community members who would commit to supporting students' implementation plans. Our goal is to award funds to group(s) with the most solutionary solutions and plans for implementation to continue their work.

> **"Our goal is to award funds to the group(s) with the most solutionary solutions"**

THE CRITERIA FOR SOLUTIONARY YOUTUBE CHANNEL VIDEO SELECTION:

- How solutionary is the solution?
- How feasible is the solution?
- If implemented, how successful was the solution in impacting the problem?
- How likely is it that the solution will be spread and replicated by sharing it?
- How well did the students present their work in their video presentation, including solid research; accurate understanding of the research; and good critical, systems, strategic and creative thinking?
- What was the quality of the learning from the students' point of view? Was this a meaningful, transformational experience for them?

13. Assess, reflect, iterate

Working to solve a problem is an iterative process and an opportunity for continuous improvement. The following circle demonstrates this process:

PLAN by identifying and analyzing the problem and its causes, reaching out to stakeholders, devising solutionary solutions, deciding which one to implement, and creating an action plan.

DO by implementing the solution and measuring the results.

REFLECT after studying the results and assessing areas for improvement.

DEVELOP a new plan that incorporates what you have earned.

APPLY new ideas and the next iteration of the solution

It is important to assess impact
If students are able to implement their solution, it's important that they collect data to analyze and assess the effectiveness of their efforts on the problem they addressed. This is essential work on the path to becoming a successful solutionary.

It is even more important to reflect
After completion of the Solutionary Process, it's time to reflect. What worked well? What could be improved in the collaboration, implementation, and data collection processes? What advice would we give to others working on this problem? What would we do if we had more time to work on this? What would we do if we had more resources?

What was learned about ourselves, our team and the problem? What advice would we give others just starting to engage with the Solutionary Framework? What new ideas have emerged? How have we grown as people and as solutionaries? How can what we've learned be applied to how we live our lives, as well as to our goals and aspirations?

Answering these questions is important feedback to guide further solutionary work.

"If students are able to implement their solution, it's important that they collect data to analyze and assess..."

14. Celebrate!

In the busyness of the school year, it's easy to skip this final step, especially if a culminating fair or summit already felt like the natural celebratory endpoint. However, we encourage you to find a meaningful way to celebrate the hard work and accomplishments of the solutionaries you've prepared so well.

To remind your students that they now carry with them (forever, we hope!) a solutionary mindset and solutionary lens, and that their solutionary practice is ongoing, consider some of the following ways to celebrate:

"Offer a 'good news' class during which you share positive actions and outcomes…"

- Provide every student with the name of another student in the class to whom they write a thank you letter expressing gratitude for what that student did, and what they learned from them. Hand out the letters so that every student receives a thank you.

- Have a Solutionary Mural-Making Party, during which students share images and words to depict the world solutionaries will create. Or, create a collaborative Word Cloud that captures how students feel when they do solutionary work or what they accomplished through their solutionary work that you print and display in the classroom.

- Hold a Solutionary Council in which you pass a stone in a circle with the person holding the stone stating: "(Name of a student in the circle) is a solutionary because …" so that each student gets to highlight the solutionary achievements of another publicly. Make sure that students know that they'll choose someone whose name hasn't yet been mentioned until all the students in the circle are named.

- Host a "Solutionaries in the News" event where you watch video(s) of young solutionaries like Greta Thunberg and celebrate the power of youth to create change.

PART 3: LINKS & RESOURCES

Examples and case studies of educators bringing solutionary practices to students

In this section, we highlight teachers and schools/ universities that have brought solutionary learning to their students from elementary school through college and in different content areas. Our purpose in providing these examples and case studies is to share the range of ways that teachers have chosen to implement solutionary practices so that you will feel inspired, motivated, and more confident with your chosen approach.

Most of these teachers have been bringing solutionary learning to publicly funded classrooms, working within the constraints of their curricula.

You will see that some teachers followed the Solutionary Process more closely than others. Some had a full semester to do solutionary work with their students, while some had only a few weeks. Others wove real world issues and solutionary thinking into their curriculum wherever they could. For one school, Colegio Maya in Guatemala, solutionary learning was integrated into the entire school.

Please share your experiences with us so that we may consider highlighting you and your students in future versions of this Guidebook.

"Compassion lies at the core of most people's efforts to alleviate suffering..."

PART 2: HOW

1. Bringing solutionary practice to upper elementary students

CASE STUDY 1: FELICE CLYNE-DAVIS, 4-5TH GRADERS, NYC

Felice Clyne-Davis has been teaching self-contained multicultural fourth and fifth grade gifted and talented classes at a Title 1 public school, PS 165, Edith K. Bergtraum School in Flushing, NY. Most of her students receive free or reduced lunches and her classes represent a significant diversity of ethnicity, religion, and nationality.

Felice piloted IHE's Solutionary Program with fourth graders in 2015 and has since regularly incorporated real-world issues and solutionary thinking into her science and reading classes. Her students discuss current events and read a variety of fiction and nonfiction texts that explore important social and global issues. Felice teaches her students to be media literate and look at information with a healthy dose of skepticism. She turns to old pop songs like "I'd Like to Teach the World to Sing," "Imagine," "We are the World," and "Man in the Mirror" to inspire her students to think deeply about issues they care about and to become more aware of being compassionate toward others. She also conducts Socratic Seminars in class that enable students to examine and discuss important topics.

For the past several years, she has followed a prescribed reading program by Pearson Education. Their first unit in fifth grade is on the interconnectedness of all species and features books like Night of the Spadefoot Toads, where fifth-grader Ben Moroney finds a kindred spirit in his eccentric science teacher, Mrs. Tibbets. She shares with Ben a love of amphibians and reptiles and exploring the natural world. Mrs. Tibbets invites Ben to explore with her the natural habitats on her rural property, where she introduces him to the endangered spadefoot toads that inhabit a vernal pool. Spadefoot Toads is followed up with a shared reading of a biography on early environmentalist, Rachel Carson, which in turn is followed up with a primate unit exploring the important work of primatologists Jane Goodall, Birute Galdikas, and Dian Fossey.

> "Her students discuss current events and read a variety of fiction and non-fiction texts..."

Using IHE's True Price activity, Felice's students have learned about the impact of the palm oil industry on wildlife, child and adult laborers, and labor practices in the making of some of their favorite foods. Their investigations have led them to create their own "Compassionate Kids" websites and deliver presentations in school to help educate others. They've also explored the Flint, Michigan water crisis, and how many communities in the U.S. and abroad don't have access to clean water.

Felice describes the outcomes of solutionary learning this way: "Students have done great investigations and created exciting and in-depth multimedia presentations where they have shared their knowledge with members of the school community. They have created informative websites where they explore issues that impact people, animals, and the environment." She says her students experience "confidence, compassion, and care," which she notes, "does a world of good in building our class community."

"She says her students experience 'confidence, compassion, and care'"

Felice says that their next steps will be to contact legislators, business leaders, and policy-makers and get more traction and exposure for their videos and PSAs. She is hoping to begin independent student investigations earlier in the school year so students have more time to implement their ideas.

CASE STUDY 2: ELEMENTARY SCHOOL, COLEGIO MAYA, GUATEMALA

Under the leadership of director, Mike Johnston, Colegio Maya, an International School in Guatemala, began using guided inquiry at every grade level, teaching four inquiry units per year to students from pre-Kindergarten to Grade 5, enabling students to dig deeply into important concepts and have time to take meaningful action as part of the inquiry cycle.

To have alignment to the subject standards, two inquiry units were oriented to the science and math curricula, and two were oriented to the social studies and English curricula.

Student solutionary action is not preordained and does not begin with a pre-determined project; rather it always develops through inquiry and interest in building a better community.

Two recent examples include:

- Through their insect inquiry in Grade 2, students decided to establish their own bee colony to mitigate the declining bee population in Guatemala.

- Out of their civics inquiry In Grade 5, students started a peer mediation group to help younger students learn about conflict resolution.

The philosophy that guides Colegio Maya's approach is this: When students are given meaningful concepts and the freedom to inquire and learn about what they care about, the road to solutionary work opens before them and anything is possible.

2. Bringing solutionary practice to middle school students

CASE STUDY 3: 6TH GRADERS, FALMOUTH MIDDLE SCHOOL, FALMOUTH, ME

All the sixth graders at Falmouth Middle School participate in a solutionary unit. In the past years, English and science teacher, Katie Coppens, collaborated with social studies and math teacher, Mat Holmes; while social studies and science teacher, Sara Tammens, collaborated with English and math teacher, Angela Piveronas. This gave all four teachers and their students three and a half weeks, a double block of time, to do their solutionary work.

Katie and Sara piloted IHE's solutionary program and then led the expansion of solutionary learning to the entire sixth grade (195 students) the following year. They modified the Solutionary Process to fit their curricula and timeframe.

> **"…two inquiry units were oriented to the science and math curricula…"**

PART 2: HOW

Students were able to choose problems of interest to them, and these included:

- Ocean plastic
- Fear of/decline in vaccination
- Racism in schools
- Gender pay gap
- Self-image (anxiety based on gender stereotypes)
- Animals used in entertainment
- Prison reform
- Poaching
- LGBTQ+ bullying
- Elder abuse
- Animal abuse
- Climate change
- Human overpopulation
- Racial stereotypes
- Cell phone addiction
- Gender stereotypes
- Ocean dead zones
- Childhood obesity
- Sexism in the media
- Factory farming

Students implemented different kinds of solutions: educational solutions, direct action solutions, and policy/legislative solutions.

One group conducted an art contest for students to illustrate the negative effects of factory farming, while another wrote to the Maine Department of Health and Science Education, making a case for including mandatory units on the impacts of human overpopulation.

Another group focused on direct action to cut down on the use of plastic water bottles at their school by setting up a donation station at school for reusable water bottles and distributing these to children who didn't have one, promoting a "Water Bottle Wednesdays" campaign.

"Her students discuss current events and read a variety of fiction and non-fiction texts..."

A third group focused on an education campaign aimed at the causal level of "mindset," to promote healthier body images, particularly for girls, producing this video to share with others.

One group that focused on policy change through legislation reached out to legislators to support a pro-vaccination bill that was important to them They contacted legislators opposed to the bill, and one legislator switched his position (and the bill passed). They also wrote op-ed pieces to local newspapers.

A group addressing global warming offered local businesses a comparative analysis of their energy bills, showing long-term costs before and after installation of solar panels.

The groups delivered presentations on their topics and solutions at the end of the school year for members of the school, parents, and greater communities.

Katie and Sara describe the impacts of their Solutionary Unit this way: "This unit helped students better understand the complexity of problems and how to go about creating change. Instead of just talking about problems, they got to do something about a problem that they became passionate about. Students also learned from each other's projects, thus expanding their awareness of the world outside of their sixth-grade selves."

After their presentations, many parents commented on how their children were more informed shoppers at the grocery store or more aware of the detriments of excessive cell phone use. Their students "are taking the lead and teaching the adults in their lives about all of these issues."

One of their takeaways was to approach the unit differently in the coming years, teaching the background information on systems and root causes throughout the year, with a 2-3 week unit including research and an action plan at the end. They believe that in this way, the students will be more accustomed to thinking like a solutionary well before their actual solutionary actions begin.

"Instead of just talking about problems, they got to do something about a problem that they became passionate about."

PART 2: HOW

CASE STUDY 4: LANGUAGE ARTS, BLUE HILL CONSOLIDATED SCHOOL, BLUE HILL, ME

Science and reading teacher, Nell Herman, and language arts teacher, Kat Hudson, collaborated on a multi-disciplinary solutionary project with their 8th grade students. They modified the Solutionary Process, integrating it into a water quality research study within their science and language arts curricula. Students did not choose a problem to address themselves, but rather participated in an investigation of E. coli bacteria and non-native green crabs in their local watershed.

Solutionary thinking was new to many of their students, and they liked being given the freedom and creativity to think about solutions to the problems they uncovered. One girl was so inspired by the project that she donated $200 so that future 8th graders could continue the work they began, since the investigation needs to be ongoing to successfully implement solutions to the problems they uncovered.

"...students made the public aware of the problems in the watershed through a town meeting..."

After collecting data, the students made the public aware of the problems in the watershed through a town meeting with their local land trust and community members. They also educated their school community, and one quarter of them attended the 2018 Solutionary Summit at the University of Southern Maine where they presented their work to a wider audience. That experience helped them to see themselves as "experts and changemakers," and they were excited by the positive response they received.

CASE STUDY 5: MIDDLE SCHOOL READING TEACHER, DISCOVERY CHARTER SCHOOL, PORTER, IN

Lauren Allison, a graduate of IHE's M.Ed. program, is a 6-8th grade reading teacher at Discovery Charter School in Porter, IN, who integrates solutionary thinking into her classroom throughout the school year, rather than through a separate unit focused on solutionary practice.

Lauren's students worked to have the school certified as an Eco-School by the National Wildlife Foundation by focusing on better understanding the school's resource usage and management. The students are in charge of the school's recycling program, which includes educating classrooms

about what is and is not recyclable and collecting and recycling materials each week. Through their science classes students have also worked on projects to help the natural world such as trail maintenance, removing non-native plant species, researching and planting native plants, and providing QR codes for native plants that can be used by educators on their school trail to help teach students about the natural world.

The school-wide efforts have given students a sense of ownership in their school community. They have gained an opportunity to be seen as leaders and active community members, which allows them to shine in arenas that are not defined as traditional schoolwork.

Lauren believes that one of the biggest impediments to teachers implementing solutionary practices in their classrooms is the belief that they have to create a big "Pinterest-worthy" unit. That belief prevents many teachers from embarking on solutionary learning at all. She recommends adding a discussion to a unit teachers already offer that focuses on solutionary ways of looking at the problems that are already being explored. She also suggests that teachers start small by letting students think of small problems they can address easily within the classroom. Working through the process in this way can allow students to see the immediate success of an idea and motivate them to want to try larger problems next: school-wide concerns, neighborhood concerns, city concerns. Lauren says that by starting small and building to larger-scale ideas, students and teachers have time to build their confidence.

> **"by starting small and building to larger-scale ideas, students and teachers have time to build their confidence."**

CASE STUDY 6: 6TH GRADE SOCIAL STUDIES, LYMAN MOORE MIDDLE SCHOOL, PORTLAND, ME

David Hilton teaches social studies to sixth and seventh grade students and has also modified the Solutionary Process to fit into his curriculum through an 8-week public policy unit offered collaboratively with the language arts team.

His students chose the problems they wished to solve, and groups of students addressed ocean pollution, LGBTQ+ rights, prison reform, homelessness, factory farming, bullying, air pollution, racial profiling, the gender wage gap, school gun violence, dam removal, police reform, and gender stereotyping.

While the students were not able to implement their solutions within the timeframe, they gave excellent presentations and were able to connect with experts and local decision-makers. They felt taken seriously and were inspired to do good and ask questions. They also felt empowered to push forward.

David's efforts serve as a reminder that an inability to create time for implementation should not deter teachers from bringing solutionary practices to their students. Solutionary thinking and sharing is a worthy goal.

"David's efforts serve as a reminder that an inability to create time for implementation should not deter teachers"

CASE STUDY 7: MIDDLE SCHOOL, UNITED WORLD COLLEGE SOUTH EAST ASIA, SINGAPORE

Every Middle School student at UWCSEA takes a semester-long course called "Be The Change," which focuses on taking action that creates a better world. In grade 6 students take personal action, grade 7 local action, and grade 8 global action. To do so effectively, teachers focus on helping them develop skills and character traits to tackle issues of all kinds. The courses begin with review and systems thinking practice, using tools such as the iceberg, the compass, the pyramid and other systems mapping approaches (see Compass Education and other systems thinking tools in the Resources section of this guidebook). The students seek to understand both their sphere of concern and their sphere of influence in each of the personal, local, and global realms. From this launching point they head down the road of effective solutionary action, which often overlaps with their service learning groups and personal projects.

The key to effective action is a process of finding root causes and leverage points for positive change. The students do not take action until there is a true systemic understanding of the issue. This has resulted in effective action. Faculty members coach students when the scope of work is too big or too limiting and use check-in meetings to aid the process. Mapping systems is sometimes daunting to students, so the faculty help them understand that complexity is meant to be embraced not feared. While some middle school students are ready to be self-directed, others need quite a lot of support, so it has been very important to have faculty facilitators who know when to let students go and when they require guidance.

> **"...it has been very important to have faculty facilitators who know when to let students go and when they require guidance."**

After three years of the program, the grade 8 students ran the training for sustainability and systems thinking for the 6th graders and this really helped to reinforce understanding and application. Based on their own interests and passions, students have tackled issues such as anxiety, aging, poverty, homework, composting, wellness, and learning needs. The program has built student confidence and often students enter high school already running their own services and NGOs.

3. Bringing solutionary practice to high school students

CASE STUDY 8: HIGH SCHOOL ELECTIVE COURSE, DEERING HIGH SCHOOL, PORTLAND, ME

Kirsten Platt is a social studies teacher who has been integrating solutionary learning and action for three years through her semester-long Human Rights elective. Kirsten modified the Solutionary Process by having each class work on a single issue together. Over the three years she has offered her elective, students have addressed a problem each year and have achieved the following:

YEAR 1: Produced a restorative justice disciplinary policy for the school that promoted racial justice.

YEAR 2: Taught others bystander intervention techniques.

YEAR 3: Created a school-wide lesson plan about the asylum crisis at the border.

The first year the students discovered how current disciplinary policies were self-defeating, for example, punishing students for not coming to school by suspending them from school. They also uncovered the ways in which school disciplinary policies contribute to the school-to-prison pipeline. As one student working on the problem said, "I just want everyone to succeed." Discovering a successful restorative justice approach in Oakland, CA, to use as a prototype, the students proposed a healthy and equitable disciplinary policy that their school then adopted.

PART 2: HOW

The second year, the students had the opportunity not only to learn and practice bystander intervention techniques, but also to lead a bystander intervention workshop for the nearly 200 participants at the 2018 Maine Solutionary Summit. The poised and accomplished high school students divided the participants (6th-12th grade students, teachers, and community members) into large groups, managed the groups beautifully, and taught powerful bystander intervention methods.

You can read about the work of the students in the third year of Kirsten's elective class in this news article.

CASE STUDY 9: HIGH SCHOOL SOCIAL STUDIES AND ENGLISH, OCEANSIDE SCHOOL DISTRICT, LONG ISLAND, NY

Laura Trongard teaches AP World History to sophomores; AP United States Government and Politics, Economics to seniors; as well as a Mentoring Course to seniors. Jennifer Frasca teaches English 10 Honors to sophomores and a "True North" Senior Seminar, focusing on "how literature and experience can help shape the Self."

Laura and Jennifer incorporated a Solutionary Unit into their curriculum when they asked students to become familiar with the United Nations Sustainable Development Goals (SDGs). Students first researched the SDGs and presented overviews to the group. Next they identified which goal(s) they were passionate about so groups could be formed based on student interests. They then worked together to define an area of focus within the goal in order to complete the solutionary coursework. The unit comprised fifteen forty-minute periods from start to finish.

Students addressed:

- Universal Access to Information and Communications
- Technology
- Sustainably Managing and Protecting Marine and Coastal
- Ecosystems from Pollution
- Access to Clean Water
- Access to Clean and Sustainable Energy
- Climate Change

> **"Next they identified which goal(s) they were passionate about so groups could be formed..."**

- Increasing Employment Opportunities in Developing
- Countries
- Gender Inequality
- Ending Hunger, Achieving Food Security and Improved
- Nutrition, and Promoting Sustainable Agriculture
- Building Resilient Infrastructure, Promoting Inclusive and
- Sustainable Industrialization, and Fostering Innovation
- Protecting Coral Reefs
- Stopping the Rapid and Mass Extinction of Plants & Animals
- Increasing Access to School Supplies to Improve
- Education Worldwide
- Eradicating Extreme Poverty
- Mental Health

Laura and Jennifer had students complete iceberg models, leverage point charts, and the solutionary reflection matrix and use the "why questions" to understand root and systemic causes of problems.

After each group presented their work, the rest of the class was asked to say what they learned, ask questions, and/or share how the presentation impacted them. Students shared that they were inspired to change their behavior in order to make a difference. For example, some students said they would make more of an effort to use reusable water bottles instead of plastic water bottles. Other students said they were going to get involved in efforts to save the habitats of endangered species.

Due to the timing of the unit, the implementation of solutions was planned for the following year. Going forward, the teachers plan to teach the solutionary unit earlier in the school year to allow time for students to take action during that same year. They plan to hold a Solutionary "World We Want Fair," which will allow their tenth graders to introduce the UN Sustainable Development Goals to the district's 5th graders in a meaningful and hands-on way. From there, the fifth graders will choose a goal for their individual school to focus on.

A number of their students have started to make a real difference in the lives of others and their community. Laura and Jennifer write: "There has been a noticeable increase in intrinsic motivation, which we believe comes from giving students ownership over their learning and allowing them to follow their passions. Students have been bringing us ideas and proposing projects that the integrated program could do. One student recently proposed starting a club because she had so many ideas and was passionate about making a difference. We also received an email from a student (not in the course) wanting to know if she could get involved. She is an officer of the high school Amnesty International Club and wanted to know if there was an opportunity to open the work up to the members of the club."

Laura and Jennifer plan to run professional development workshops with the elementary school teachers who have students attending the Solutionary "World We Want Fair." Following the workshops they will collaborate with the elementary school teachers to find ways they can connect solutionary activities with the content they are teaching. Additionally, they plan to establish ways for the high school and elementary school students to continue to work together to be solutionaries after the fair.

CASE STUDY 10: WAYFINDER SCHOOL SEMESTER-LONG ELECTIVE FOR HIGH SCHOOL STUDENTS IN MAINE

Morgan Caudill brought solutionary practices to seniors at the Wayfinder School through a semester-long elective class devoted to solutionary learning. She also integrated solutionary thinking into her Diversity and Social Justice, and Documentary Film curricula. Her students ranged in age from 16-20, coming from other schools where they had amassed varying levels of credit for high school graduation.

Morgan's students sought to solve issues related to factory farming and sex trafficking. Her students struggled to choose an issue because there were so many issues they felt passionately about, and some issues felt impossibly large for them to solve (though after gaining more knowledge, research, and encouragement, they realized otherwise).

> **"A number of their students have started to make a real difference in the lives of others and their community."**

PART 2: HOW

"Though neither group got to fully implement their solutions, they were able to develop solutionary solutions."

They worked hard to discover what level of research would be sufficient for the issues they addressed, and when they felt they had hit the solution stage most
of them quickly realized they needed more background knowledge in several areas in order to truly understand what type of solution would go beyond the surface and get to the heart of the problem. Once they were at this solution stage, they also struggled to understand how to implement a solution that was solutionary.

Though neither group got to fully implement their solutions, they were able to develop solutionary solutions. The factory farming group focused their solution around cultivated meat (lab-grown animal cells that can replace the raising and slaughtering of animals for meat). They chose to create an awareness-raising educational campaign about both the ills of factory farming and the ways in which cultivated meat creates lasting benefits not only for the animals, but also for humans and the environment. Their campaign included creating posters, organizing mobile information sessions, and creating booths to be held at local farmer's markets, fairs, and festivals.

The sex trafficking group drafted a legislative proposal to make amendments to the Trafficking Victims Protection Act of 2000. Their proposed legislation guarantees housing, education, job skills training, mental health services, and case management services for survivors. They outlined a specific community housing model to be piloted, along with individualized educational and job training provisions and a plan to offer consistent and varied counseling options.

Said Morgan, "The experience expanded the students' worldviews, increased their empathy, and developed new levels of awareness about the harm humans cause other people, animals, and the planet. They gained research skills as well as more confidence in those skills. They excelled in a public speaking forum they never imagined themselves even attempting. They also realized their own power as individuals."

Morgan also writes: "I fully intend to use solutionary methodologies, tools, and hopefully the [full process] in my future classrooms. I view solutionary approaches, ystems thinking, critical thinking, and creative thinking as approaches that can and should be infused throughout all class subjects.

Even if I do not have the opportunity to guide students through the entire issue to solution again, making an effort to educate my students to be solutionaries means that I am helping to foster a sense of purpose, curiosity, compassion, open-mindedness, and awareness in them (which in my eyes, should be the ultimate purpose of our education system)."

4. Bringing solutionary practice to college students

CASE STUDY 11: SPANISH LANGUAGE, VALPARAISO UNIVERSITY, VALPARAISO, IN

Stacy Hoult-Saros is a professor of Spanish language and Latin American literature and culture at Valparaiso University in Valparaiso, IN.

Stacy has modified the Solutionary Process in her semester-long courses, integrating what she's learned as an alumna of IHE's graduate certificate program, online courses, workshops, and from the books The World Becomes *What We Teach and The Power and Promise of Humane Education.*

In her Latin American culture course, Stacy has each student investigate a problem related to Latin America, propose solutions, and then create or advocate for the solution they favor based on their research. Students have chosen from a range of issues relevant to the countries they were studying, and some came up with their own concerns. Most worked on topics related to civil or human rights or the environment. Themes included devastation of rainforests, HIV/AIDS, human trafficking, electoral fraud, and the disappearance of indigenous languages.

Stacy states that the final project was successful "in guiding them to deep learning about complex problems and systems thinking. It also opened their eyes to the range of approaches to issues like drug trafficking and gender violence. The most solutionary solutions were probably those offered by students who had worked directly with nonprofits through our study abroad programs or mission trips. They had witnessed the impact of specific issues like poverty in Guatemala and the spread of HIV/AIDS in Costa Rica via sharing needles, and they saw examples of people working to solve those problems at the local level."

"They excelled in a public speaking forum they never imagined themselves even attempting."

PART 2: HOW

Bringing solutionary learning to an entire county

San Mateo County, CA, which serves over 113,000 students across 170 public schools in 23 school districts and 100 private schools, has integrated the solutionary approach as a philosophy and framework with the Curriculum and Instructional Services Department and the Environmental Literacy Initiative at the San Mateo County Office of Education (SMCOE).

There are currently 130 teachers delivering Solutionary Units to their students, having developed these as part of two different teacher fellowship programs offered at SMCOE, under the leadership of Andra Yeghoian, the Environmental Literacy Coordinator, and Gwenn Lei, the English Language Arts and History Social Studies Coordinator.

Andra has developed a Solutionary Unit of Study Framework, promoting a "mild, medium, and spicy" approach to integrating solutionary learning into the curriculum at various levels of depth, to serve the range of needs and capacities of classrooms.

San Mateo has launched Solutionary Fairs, which they hope will spread throughout California and beyond.

Activities and lessons from the IHE website

IHE has an award-winning Resources Center on its website with hundreds of free downloadable activities and lessons, many of which are aligned with Common Core standards. There are resources for all ages and related to different content areas. We encourage you to peruse the resource center.

This page will provide links to many IHE resources. The following activities and lessons may be particularly useful to you.

"There are currently 130 teachers delivering Solutionary Units to their students..."

PART 3: RESOURCES

IHE RESOURCES

For encouraging students to explore what it means to make mogo choices, live as ethically as possible in a globalized world, build empathy, and feel empowered:

- Being Humane
- Circle of Compassion
- Choices Cards
- Cast Your Vote
- Behind the Scenes
- MOGO Questionnaire
- MOGO Questionnaire for Youth
- Understanding Different Perspectives
- What Will You Say?
- Power Chat
- Leave Only Footprints
- True Price

For encouraging students to explore what it means to be a solutionary and devise solutionary solutions:

- Solutionary Solution Sorting Activity
- IHE Pinterest Page on Stories of Solutionaries and Changemakers

Additional useful resources:

- All of IHE's Pinterest Boards
- IHE's Pinterest Board on Setting Up a Humane Education Classroom
- IHE's Pinterest Board on Cultivating Ethical and Humane Values
- IHE's Pinterest Board on Critical Thinking
- IHE's Pinterest Board on Systems Thinking and Systems Change
- IHE's Pinterest Board on Cultivating Student Collaboration Skills
- IHE's Pinterest Board on Cultivating Student Presentation Skills
- IHE's Pinterest Board on Information Literacy and Research Skills
- San Mateo County Solutionary Unit Framework

PART 3: RESOURCES

VIDEOS OF NOTE

Introduction to Solutionary concepts (animated videos):

- Let's Educate the Solutionary Generation (1 minute)
- Become a Solutionary (10 minutes)

Inspirational

- IHE's Solutionary Program Video (3 minutes)
- Wangari Maathai's inspiring I Will be a Hummingbird (2 min)
- Hans Rosling's 200 countries/200 years describing dramatic improvements in health and income (4 minutes)

Zoe Weil's solutionary-focused TEDX Talks

- The World Becomes What You Teach (17 minutes)
- Solutionaries (19 minutes)
- How to be a Solutionary (11 minutes)
- Educating for Freedom (18 minutes)
- Expanding our Circle of Compassion (13 minutes)
- How Will You Answer This Question? (11 minutes)

Building empathy and staving off apathy

- What We Have in Common (3 minutes)
- The Antidote to Apathy (7 minutes)

Systems thinking

- 5 Whys (1.5 minutes)
- What are Systems (2 minutes)
- In a World of Systems (9 minutes)
- A Little Film About a Big Idea (12 minutes)
- Introduction to Connection Circles (4 minutes)
- Creating Causal Loop Diagrams (4 minutes)
- Balancing Feedback Loops (4 minutes)
- How to Create Cause and Effect Diagrams (3 minutes)
- Reinforcing Feedback Loops (6 minutes)

Bias and critical thinking

- 6 Videos to Teach about Technology Bias and Influence
- Film Festival C
- Factfulness Presentation
- The Best Stats You've Ever Seen

PART 3: RESOURCES

ADDITIONAL RESOURCES

Research, critical thinking, and systems thinking tools:

- Ladder of Inference
- Research, Accuracy, Bias Toolkit
- CRAAP Detector Toolkit
- Asking Good Questions

Resources to implement solutions:

Below are some additional resources to help you with planning and implementing your solutions. Note that most of these talk about projects rather than solutions, and none of them have the full solutionary lens, but many of them will have elements that are useful.

- GIN (Global Issues Network) Project Workbook
- Youth Service America Tip Sheet
- Global Changemakers Project Management Toolkit
- The Education We Want: An Advocacy Toolkit from Plan International
- Youth Activist's Toolkit from Advocates for Youth
- Activate Toolkit from Unicef Ireland
- The Changemaker Project

Additional links of note:

- Snopes for Internet fact-checking
- 6 Resources for Finding Meaningful Solutions to Global Challenges
- Teach for America offers 8 Tips to Overcome Student Apathy
- Ashoka offers a Start Empathy Toolkit, with resources, suggested lesson plans, and more
- Spotting Bias in Your Classroom
- Teaching about Unconscious Bias
- Some Practical Ideas for Confronting Curricular Bias
- Selecting Anti-Bias Children's Books
- Donella Meadows on Finding Leverage Points

PART 3: RESOURCES

ORGANIZATIONS AND RESOURCES IN EDUCATION

- Americans Who Tell the Truth
- Awecademy
- Big Picture Learning
- Center for Compassion and Altruism Research and Education
- Cloud Institute for Sustainability Education
- Compass Education
- Critical Thinking Foundation
- Education to Save the World
- Facing the Future
- Facing History and Ourselves
- Global Future Education Foundation and Institute
- Green Teacher
- HEART
- Heroic Imagination Project
- Humane Education Coalition
- Inspire Citizens
- Peace Literacy
- Rethinking Schools
- Roots and Shoots
- Solutions Journalism Network
- Taking IT Global
- Learning for Justice
- World Peace Game Foundation
- World Savvy
- World Mapper
- Yes! Magazine for Teachers

BOOKS OF NOTE

We strongly recommend reading two of IHE President, Zoe Weil's, books:

- The World Becomes What We Teach: Educating a Generation of Solutionaries
- Most Good, Least Harm: A Simple Principle for a Better World and Meaningful Life

These two books provide the foundational philosophy, vision, and understandings of the solutionary practices described in this guidebook.

We also believe that the following books provide foundational information of great value to educators who want to teach their students to be solutionaries:

- Harari, Yuval N. Sapiens: A Brief History of Humankind. Toronto: Signal, 2014.
- Meadows, Donella. Thinking in Systems. White River Junction, VT: Chelsea Green Publishing, 2008.