



Getting To Know the 3 Gears



GEARING UP:

Gear 1 – Empathy & Need Finding



Empathy, Need Finding and Entrepreneurs

We look to innovators and entrepreneurs to create the products and services that improve our lives. To bridge the gap between what exists today and what could exist tomorrow, entrepreneurs must seek to understand what people need, even if people don't know it themselves; one of the best tools to identify someone else's needs is empathy – the ability to

understand another person's experience of the world as if you were them. Empathy flows into need finding, the process of turning empathic observations into insights about unmet needs.

Empathy – Where It All Starts

The ICE process always begins with the user, the person who will use or buy the innovation. This approach is sometimes called human-centred design because it

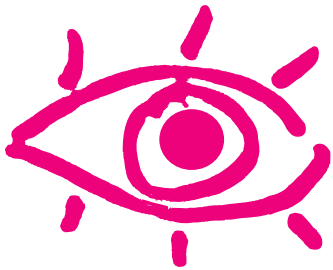
begins not with technology or ideas, but with an attempt to understand a human being. This understanding is crucial because true innovation happens only when an idea is actually used by someone in the world. For an idea to be realized successfully, it has to be valuable to people in some important way – it has to meet a need or solve a problem.

Understanding people's needs is thus the first step of innovation. But how do we do that? It would be easy if we could just ask. But it is much more complex than that. People can't always articulate their needs in a clear way and they may not even be aware of them. They certainly are not aware of the different ways in which those needs might be met. All of this means that needs must be inferred from what people say and do, as well as from what they don't say and do. Doing this requires empathy.



Tools for Gear 1: Empathy & Need Finding

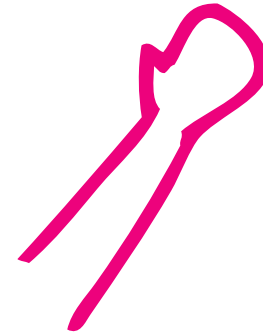
You can build empathy and understand another person's needs through these activities:



Observation focuses on using our senses to learn about and understand the world around us. Observation is a skill that takes active engagement and practice. Whether students observe in a place they visit often or a space that is new, they can notice new things by carefully watching what people do in a given space or time, including taking careful note of their body language, and asking why people are behaving in a particular way. Observation involves taking in information and inferring meaning as two discrete acts.



Open-ended interviews are an opportunity for students to learn by listening to stories and looking for meaning within them. Asking people to share an experience in a way that reveals a story – what they did, why they did it, how they felt – can provide a powerful window into their needs. To elicit these stories, students will ask open questions and listen, rather than talk.



Experience is about learning through doing. It is sometimes important to actually put ourselves into an experience in order to truly understand it – to literally walk a mile in another person's shoes. This involves taking part in an experience as a user would and noting what they do, feel and think throughout.



Need Finding – Seeing the Gaps

Entrepreneurs have an opportunity to bring about an innovation when there is a gap between the current experience and a desired state. The process of identifying this gap is called need finding.

Need finding is about interpreting the information that has been gleaned from observation, open-ended interviews and experiences. Needs can be identified across a number of different dimensions including: social, physical, identity, communication and emotional.

Why focus on finding needs instead of finding solutions? Because needs last longer than any single solution does. For example, for millennia, humans have had a need to capture memories. The technologies that we have used to meet that need have ranged from cave drawings to paintings to printed books to film cameras to digital cameras to smart phones. The need has remained the same; the way of meeting the need has evolved. If we focus on one solution, like photographic film, our solution may become outdated.

Exploring Empathy & Need Finding with Sector Partners

Working with sector partners helps the tools come alive in relevant and interesting ways. Empathy and need finding are relevant to every SHSM sector, but everyone may not use the same words for these concepts. Sector partners may need help discovering how these skills might play a role in their organizations. The following questions can be used to prompt sector partners to identify empathy and need finding in their organizations:

- Who are your customers?
- From your customers' perspective, why do they value your products or services?
- Tell us a story about a time when you really delighted a customer. What did you do? What need did you serve?
- There are many ways to learn from your customers. You can spend time with them, you can interview them, or you might work side by side with them. Tell us a story of a time when you learned something new about a customer. What did you do? What did you learn?
- Tell us a story about a time when your customers inspired you to do things differently.

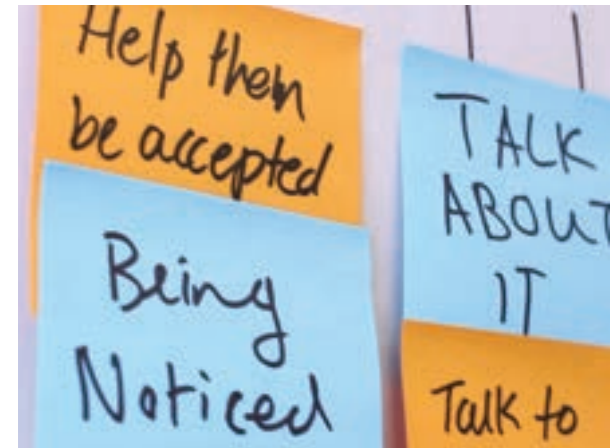


Choosing Your Empathy & Need Finding Activity

It is important that students are confident that they have the tools to understand the needs of their future users. The type of empathy activity you choose to do will depend on the type of challenge you design with your sector partner. Here are some tips to keep in mind when selecting an activity:



- **Observation** is a powerful activity when students have an opportunity to actually see the challenge. For example, if students are solving a challenge for a local restaurant, they might spend time in that restaurant, observing how users engage with the food and service. Think through how a site visit could be incorporated into the challenge.
- **Open-ended interviews** can help students connect with industry. Students can interview anyone who might be connected to the challenge – staff, volunteers, users. Interviews can be done in advance or on the challenge day. Taking the time to pre-schedule interviews helps ensure that every student has an opportunity to take an active role in this activity.
- **Experience** is about doing and reflecting. Giving students an experience in the challenge can help them gain a deeper understanding of a user's needs. Assigning a specific activity or task that students must complete can be the gateway to a new understanding of the challenge.





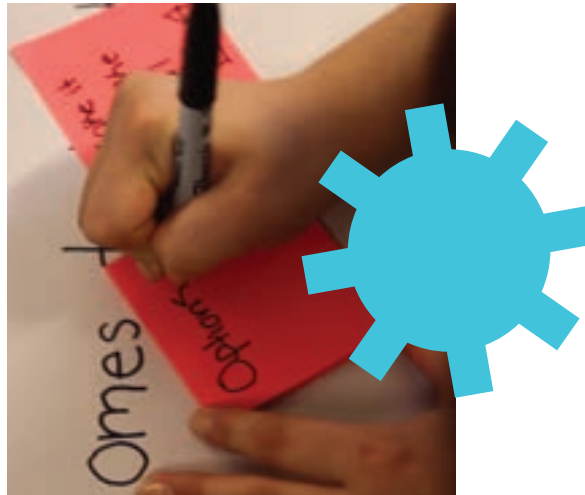
GEARING UP:

Gear 2 – Ideation & Prototyping

Moving from a Need to an Idea: Generating Ideas and Learning from Prototypes

In Gear 1, students identified an unmet need. Students next explore ways of successfully meeting that need for their user. Even the most successful entrepreneurs rarely come up with the full idea for their final product on the first try. Entrepreneurial success stems in part from engagement with a creative process known as ideation and prototyping – the generation of many ideas, combined with a process for getting feedback on ideas from users. At the heart of ideation and prototyping is creativity – the generation of multiple ideas, making connections and imagining what could be.

In ideation, the volume of ideas is key. Entrepreneurs use a variety of techniques to come up with hundreds of ideas, knowing most of them may not be developed. They consciously start from a position of quantity and an openness



to any and all ideas at this early stage. Coming up with a single great idea is hard; finding a great idea from a whole lot of ideas – and in fact using the volume of ideas to produce the great idea – is much easier. Creating ideas and building prototypes is fun, and many students take to it naturally, with just a little encouragement. Prototyping ideas – making them concrete and sharable – can help students advance

their ideas through both self-assessment and external feedback. Having students collaborate with others to improve their ideas is the cornerstone of this gear.

Ideation – Getting Past One Right Answer

The pressure to have a great idea can be overwhelming. Often times, this pressure results in wasted time spent evaluating an idea, rather than exploring and expanding it. Ideation does not focus on creating a single good idea; rather the goal is the generation of multiple different ideas to meet a user's need.

The best way to have a good idea is to have a lot of ideas.

– Dr. Linus Pauling, Nobel Laureate



Tools for Gear 2: Ideation

There are lots of techniques for generating creative ideas, but by far the most effective and efficient is a structured form of brainstorming. Many of us have been a part of brainstorming sessions where we felt frustrated, where nothing was accomplished and where all the ideas fell flat. This can happen for a few different reasons. Sometimes, the purpose of brainstorming is lost and participants start evaluating rather than generating. Other times, the session becomes a free-for-all, without focus and structure. Or, we operate without rules and norms to guide the kinds of behaviour we want to see.

There are ways to avoid these traps and to support a successful brainstorming session. To set students up for success:

Share the purpose: Make it clear that brainstorming is about coming up with lots of ideas – as many as possible – to set the group up to evaluate and make sense of the best ideas later on.

Structure the activity: Providing structure helps students focus on the idea instead of focusing on how to engage in the activity. Key structural elements include:

- Capturing one idea per sticky note (this way ideas can be moved around and similar ideas can be clustered together)
- Providing clear time constraints (3-5 minutes per round of brainstorming is ideal)
- Allowing time for 2-3 rounds of brainstorming
- Making each round of brainstorming different.

Ways to Brainstorm

Individually (everyone brainstorms by themselves, in silence, and then shares their sticky notes)

In pairs (two students brainstorm together; going back and forth, one person shares an idea and the other one captures it)

As a group (everyone captures their own ideas and shares them out loud with their team)





Tools for Gear 2: Ideation

Outline the rules for brainstorming:

Rules can help guide the experience and remind students of the mindset to engage in when brainstorming. Key brainstorming rules include:

No judgment – When brainstorming, it is difficult to know which ideas are good and which are not. Instead of judging, simply share every simple, wild, big or small idea you have. Don't criticize other ideas; welcome all ideas and recognize that every idea may offer value.

Build on the ideas of others – Listening to the group can help generate even more ideas. Instead of focusing on whose idea it is, build on each idea and make it better.

Move quickly – Don't get bogged down discussing the ins and outs of a single idea. Keep things moving!

Go for quantity – Try to generate as many ideas as possible; who knows where the next great idea might come from. Quantity leads to quality.

The end of a brainstorming session can be a daunting moment. Students will have generated a whole slew of ideas – now what? Now, it's time to look for patterns, themes and similarities. Clustering ideas can help students sort, order and combine ideas. Clustering can also inspire further ideas. See page 72 of the Appendix for a description and visual for clustering.

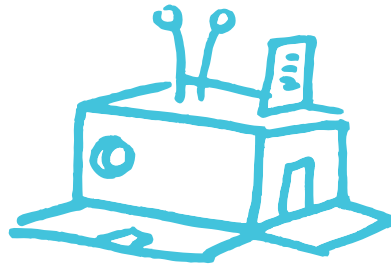


Tools for Gear 2: Prototyping

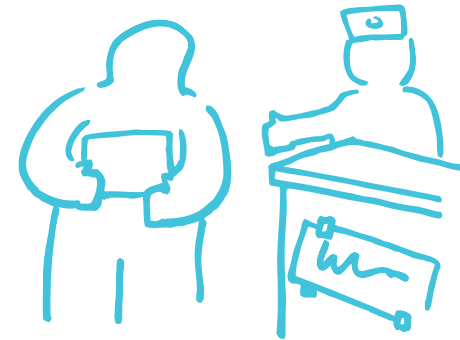
Prototyping is about visualizing an idea in a way that expresses the essence of the idea concretely. It enables students to think by doing, share their thinking with others, receive feedback and further develop the idea. Give students options for different ways to prototype, letting them choose the method that works best for the ideas they want to explore. In the activities found in the Appendix, you will see these options:



Sketch: This form of quick drawing helps students visualize their idea fast. A sketch should take no more than 15 minutes to complete. Encourage students not to get bogged down in details or perfection. The sketch should be concrete and simple enough to convey the idea to others.



Build: Building low-resolution 3D models using everyday objects is a second quick way to prototype. Students can build their idea using cardboard, tape, glue, construction paper, modelling clay and scissors. The idea often evolves as students build the prototype.



Role play: For ideas that focus on interactions between people, role play can help students communicate the experience – have them act out the interaction between a customer and store owner, as opposed to simply talking about it. While the role play of the scenario may take only 3 or 4 minutes, give students at least 20 minutes to explore different possibilities.



Tools for Gear 2: Prototyping

Feedback – Learning from Prototypes

While it is fun to build prototypes, they are built for a key purpose: generating feedback from others on the idea. Feedback is a powerful way to learn, but giving and receiving it doesn't always feel comfortable. Often, negative feedback can feel like a failure and is seen as something to be defended against. To live the entrepreneurial spirit, students need to understand that negative feedback is a great thing at this stage of the process. It gives students a chance to fix problems or to scrap some ideas before too much time and energy is invested in them.

To learn from prototypes:

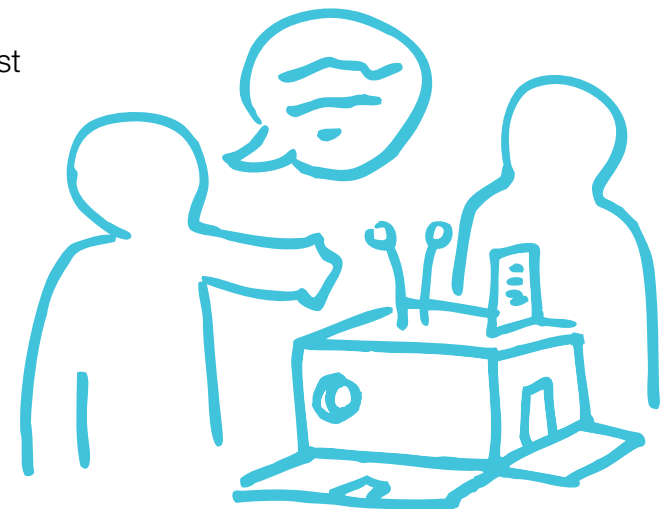
- Structure open-ended feedback questions:

What do you like and why?

What would you change and why?

What questions do you have?

- Provide students time to iterate and incorporate feedback. Building and rebuilding in reaction to feedback builds resilience and a willingness to explore multiple possibilities. As students iterate on their idea, encourage them to incorporate at least one piece of feedback they heard to make their idea even better.





Choosing Your Ideation & Prototyping Activities

The activities in this gear fuel creativity and imagination. The following are some tips to keep in mind when exploring these activities:

- Take care to structure the brainstorming time to ensure that everyone has the space and opportunity to contribute. For example, having a mix of individual and group brainstorming allows both introverted and extroverted students to contribute ideas.
- There is more than one way to prototype; depending on the students' ideas, some prototyping methods may be better than others. For example, if students are designing a service, a role play of how the idea works as an experience may be more effective than a static sketch.
- Ensure that feedback and iteration is a part of the process. Without feedback, students don't know how to make their ideas better, which is a crucial part of entrepreneurship.

Exploring Ideation & Prototyping with Sector Partners

For many entrepreneurs, generating and developing their business idea was one of the most exciting parts of the process. Many remember how their idea evolved as they learned what customers wanted and didn't want. Jonathan Ive, designer of the iPod, has said there were "millions" of versions before the first launch. While that may be hyperbole, the voice of someone who has been through the process of generating and refining ideas for their business can be powerful for students. Encourage sector partners to bring pictures of their own early prototypes to share with the students. Showing how an entrepreneur's idea evolved is a great way to launch this gear.

The following are some prompts that can spur the discussion with your sector partner:

- Tell us a story of the first time you demonstrated your product or service to customers.
- How has your product or service evolved over time? How have your customers or employees helped you think about it differently?
- How do you get feedback from your customers? What do you do with the feedback?
- When you imagine a new idea for a product or service, how do you prototype it?



GEARING UP:

Gear 3 – Strategy & Testing

Going from Ideas to Innovations

The innovation challenge for students continues well beyond the user insights gained and the great ideas developed in the previous two gears. Students must now construct a strategy to nurture and grow that idea, getting it out into the world. Recall, innovation only truly happens when an idea is actually put to use. The process of moving from idea to enterprise is all about making choices and building a strategy for sustainability. Gear 3 provides the roadmap to make and test those choices.



The history of the telephone illustrates the deep importance of a supporting organization in turning an idea to an innovation. Both Alexander Graham Bell and an Italian inventor named Antonio Meucci are credited with “inventing” the telephone. In fact, Meucci’s sketches and patent applications offer a strong case that he arrived at the idea first. But today, ask a student who invented the telephone,

and she will answer: “Alexander Graham Bell.” Few students have heard of Antonio Meucci. Why? It turns out that Bell’s father-in-law, Gardiner Greene Hubbard, was a savvy businessman. Hubbard helped Bell organize the Bell Telephone Company to make and sell telephones in communities across America. Hubbard and Bell recognized that the telephone was a great invention, but in order for

the invention to work, they needed other people to use the telephone as well. Hubbard and Bell designed a strategy to build the infrastructure for the widespread use of the phone. Hubbard understood that the invention alone wasn’t enough – Bell needed a strategy.



Strategy – Taking Action... with Smart Risks

We sometimes think of entrepreneurs as wild risk takers who bet their life savings on a big idea. While that sometimes does happen, entrepreneurial success is more often the product of hard work and smart, balanced risk taking. With students, it is best to take this more measured approach to decision making. Entrepreneurs must make many choices, but the best ones think through their strategy and test choices carefully. Successful entrepreneurs understand two key strategy concepts:



1. Strategy is about making choices. No one person or organization can be all things to all people. So, entrepreneurs and organizations have to choose what they will and won't do, who they will or won't serve. Every organization has limited time and money – by making choices, it is possible to focus those resources and increase their impact.

2. Strategy is about winning. In the context of innovation, entrepreneurs think about winning with users and against the competition. What does this mean? The 3 Gears process is focused on a user and his or her needs. For an innovation to be successful, a group of users – customers who will choose to buy or use the innovation – must be clearly identified. Other organizations want to engage the same customer – want that user to choose them. This is true in both for-profit and non-profit organizations. In order to win, entrepreneurs must figure out how to better serve those users, to create more value than the competition does. Winning doesn't mean "killing" the competition and putting them out of business. It means that the customers an organization wants to serve will choose it over other options.

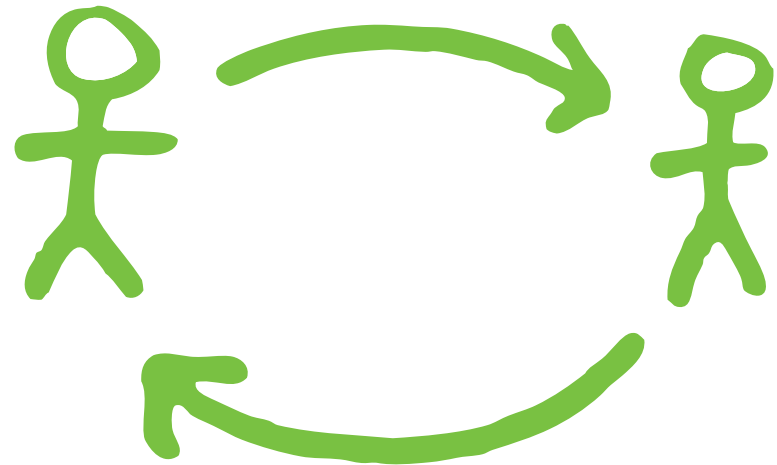


Tools for Gear 3: Strategy

Making meaningful choices to develop a strategy will help students further refine and develop their ideas. Activities in this gear should help students think about their idea from a strategic perspective. To support these activities, keep in mind these concepts:

Making Strategic Choices: Students often believe that their ideas should address a large group of people (i.e., everyone!) because this will ensure success. But often, by trying to satisfy everyone's needs, no one is served well. To support a successful discussion about choice making, connect it to the real world. Help students understand what a strategy is by connecting to choices made by real companies and organizations. For example, the popular retailer Lululemon Athletica focuses their products on people who love yoga and want to look good doing it. They don't, for example, focus on soccer players or clothes for working in offices.

Students may have a hard time making choices about the specific product or service they want to offer. Often, after feedback, students will try to add more and more features to the product, so that there is a little something for everyone. It is important for students to make clear choices about who they will serve and what they will offer so they can really meet the needs of their user.



Value-exchange: Entrepreneurship is often connected to profit-driven enterprises that create value for owners and investors. That definition is too narrow; ultimately, entrepreneurship is about building and scaling an idea. In many organizations, for-profit and non-profit alike, building and scaling an idea means considering the sustainability of the decisions through an economic, social and environmental lens. Help students explore all the possible benefits of their ideas by considering the impact on all the stakeholders who may be involved in building and scaling their idea.



Tools for Gear 3: Testing

Every new strategy has a lot of assumptions embedded within it. An assumption is a guess about the world, something we think is true about our customers, our competition or our company. We assume customers have access to our product. We assume they will be willing to pay for it. We assume we can make a good quality product, and we can do it quickly. We assume competition will keep doing what they are doing right now. If those assumptions are bad ones, if they aren't really true, then our strategy will fail.

Take purple ketchup, for example. Purple ketchup was launched because a company assumed that kids would like a different colour ketchup and that parents would buy it because they like to give their kids what they want. Purple ketchup tasted exactly like regular ketchup, but was a bright hue of purple. This fun idea turned out to be no fun for the company that launched it; purple ketchup was a



flop. Why? Parents just didn't see the need for purple ketchup. They didn't want to buy ketchup just for the kids, and they didn't like the idea of eating purple ketchup themselves or of introducing unnecessary dyes into their kids' diets, no matter how fun it might look. This is why testing is so important. Before funnelling money and time into creating purple ketchup, the company could have tested whether the idea could really win with customers.

Testing helps students create a winning strategy by reducing risk along the way. Students should ask themselves, what are the assumptions we're making about our customers, our company and

our competition? Once students have identified the answers to this question, they can create simple tests to find out if those assumptions are good ones or not. Results from these tests will help students improve their strategy and, ultimately, create a winning innovation.

It is important for students to design tests that are quick and inexpensive to run, so they can learn a lot without spending too much time and money. Testing isn't about trying out the whole idea or strategy; it is about figuring out specifically if the underlying assumptions are good or not. For example, if students have created a mobile app, they may have assumed users would be willing to pay for it. A quick, low-cost test of this idea might be to survey users and ask how much they'd be willing to pay for it. These quick conversations would help students quickly gain feedback from their users. These tests help students learn how they can bring their ideas to life.



Choosing Your Strategy & Testing Activities

The activities in Gear 3 help students think strategically about how to make their idea come to life. Like entrepreneurs, in this gear, students will make choices to create a sustainable innovation that meets a need in the world. Strategy and testing are not one-time activities. Doing more than one of the activities can help students further develop their innovations.

Strategy and Implementation: How do they differ?

There is a common misconception that strategy is synonymous with “implementation”. Implementation is certainly important, however it is different from the thinking we ask students to do through the Gear 3: Strategy & Testing activities. Implementation comes after strategic thinking. Strategy focuses on the thinking that can help enable the idea. When sharing innovations with sector partners, focusing on the students’ thinking will help the students better articulate why their idea might be of value to the partner. Sector partners have a

strong understanding of their business and industry, but need to understand how the innovation can connect with their business. The Strategy & Testing activities in the toolkit allow students to communicate their thinking with their sector partner so that they may understand the choices before them.

Exploring Strategy & Testing with Sector Partners

For sector partners, strategy is a series of choices that they may or may not be aware that they are making. Strategy can be an intimidating word that is associated with planning for a future that is unclear and ambiguous. Instead of focusing on asking the entrepreneur to describe their strategy, another approach is to ask them how they made choices. Encourage sector partners to think of stories about how they decided on their products, customers and so on. Unlike prototypes, strategy may not be tangible, so ask for stories and examples instead.

The following are some questions that can spur discussion with a sector partner:

- Tell us about your customer. How did you choose which customer to serve?
- Where do you choose to sell your product or service? Why?
- What is a difficult choice you have had to make in your business or organization? How did your decision affect your (customers, employees, business partners, community, etc.)?
- How do you consider the social or environmental impacts of your business on your community?
- If there was one choice you could make differently, what might that be? Why?

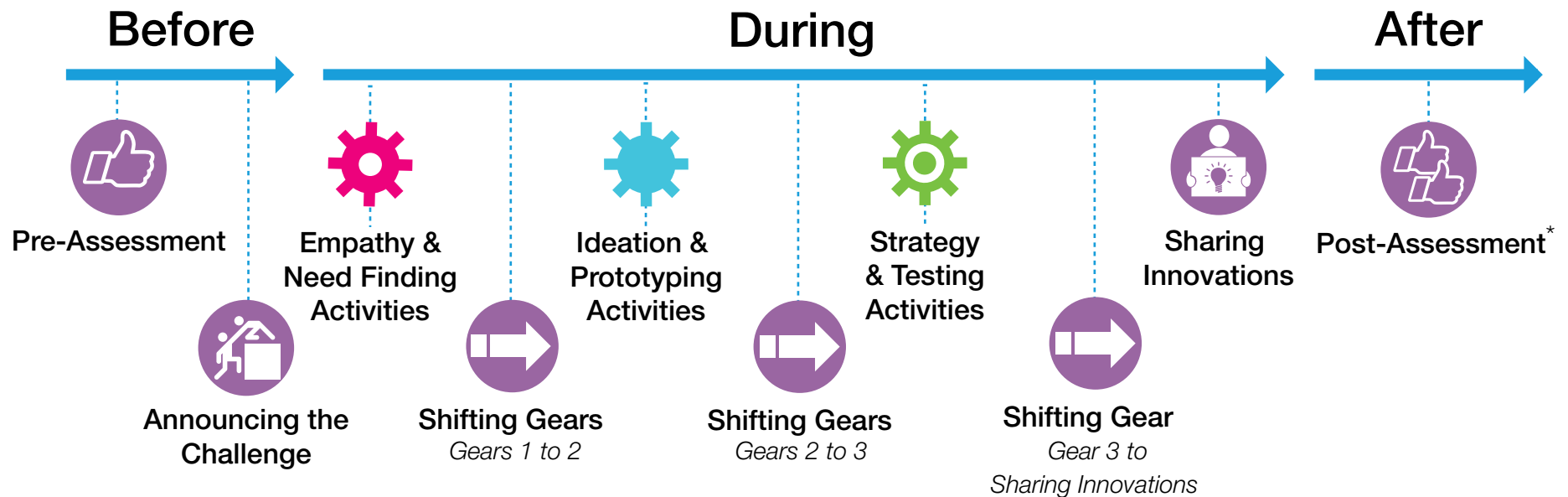


Designing Your ICE Training



Overview of ICE Training

This toolkit was built to help you design an ICE training for students. During the training, students will solve a challenge posed to them by a sector partner, working through the 3 Gears framework. This training has been designed to last approximately 6 hours. For more details about specific activity options, please refer to pages 35-37. Here is an overview of the ICE training:



* The post-assessment serves as the mandatory assessment required for all certifications under the SHSM Policy and Implementation guide.