

Activity 3: Think Like an Inventor

Now that you have learned about inventors and the invention process, how about we start doing some problem solving? Here are some suggestions we would like to share with you:

- When it comes to identifying a problem, you can always think about what problems you or others in your community face every day, or think of something even bigger. Consider the UN Sustainable Development Goals (SDG) and the Grand Challenges for Engineering (GCE) that we discussed in Activity 1. We have listed a few goals/challenges from both of these organizations for you in the table below. Take a look and see if one of these addresses the problem you would like to solve.
- Review [the UN Sustainable Development Goals](#) and make sure you take a look at the targets where they have broken down the goals and listed the indicators. For example, Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. The target and the indicators for this goal are listed [here](#). We have picked out some goals that have relevance to the “Use it!” category. Be sure to check the targets and indicators for each of the goals mentioned below.
- Review the [Grand Challenges for Engineering](#). We have hand-picked some Grand Challenges that we found relevant to the “Use it!” category.

UN Sustainable Development Goals	Grand Challenges for Engineering
4: Quality Education	Advance Personalized Learning
7: Affordable and Clean Energy	Make Solar Energy Economical
12: Responsible Consumption and Production	Enhance Virtual Reality
	Secure Cyberspace
	Provide Energy from Fusion
	Engineer the Tools of Scientific Discovery
	Develop Carbon Sequestration Methods

Now that you have identified the problem, we want to introduce you to a technique called SCAMPER. It is a method to find a solution to a problem. You can use the SCAMPER guide to brainstorm your ideas and help you narrow down to the idea you want to pursue.

Brainstorm Solutions

1. SCAMPER is a process for coming up with solutions. It is based on the notion that many new things are modifications of something that already exists. Each letter in the acronym represents a different way to arrange the characteristics of what is challenging you to come up with new ideas:

S = Substitute

(Playing basketball with a softball.)

C = Combine

(A toothbrush combined with a pencil to create a new product.)

A = Adapt

(How would you eat your spaghetti without a utensil?)

M = Magnify

(How would your chair function if its legs were wider and longer?)

P = Put to other uses

(Could your fork be used as a comb?)

E = Eliminate

(Could you play tennis without a racket?)

R = Rearrange or Reverse

(What if shoelaces were placed on the bottom and not the top?)

2. To use the SCAMPER technique, you should first state the problem you would like to solve. Then, ask questions about it using the SCAMPER checklist.

3. Use SCAMPER to do some personal brainstorming in your guide.

4. Gather all your ideas and streamline them. Select one idea to take to the next step.

SCAMPER Worksheet

What problem do you want to solve?

S = Substitute

(Playing basketball with a softball.)

C = Combine

(Toothbrush combined with a pencil to create a new product.)

A = Adapt

(How would you eat your spaghetti without a utensil?)

M = Magnify

(How would your chair function if the legs were wider and longer?)

P = Put to Other Uses

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(What if shoelaces were placed on the bottom and not the top?)

My Thoughts

Inventor Name: _____

Date: _____

Next Step

- Post your invention ideas and solutions to the [“Share Your Invention” Forum](#). We’d love to see what you’re working on!