



Goal: Introduce and practice SCAMPER, a creative technique for improving existing designs.

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Outcome: Students will be able to use SCAMPER to evaluate and define solutions to a specific design problem.

Description: SCAMPER is an acronym for a useful list of words that can be used to help you think differently about a problem. The students will learn what scamper stands for and use it to look for ways of improving an everyday item of your choice. Then, students are asked to apply SCAMPER to their chosen problem as a part of the design process (finding a solution).

Substitute What can you substitute? What can be used instead? Who else instead? What other ingredients? material? process? power? place? approach? sounds? forces? Instead of _____. I can _____.

Combine What can you combine or bring together somehow? How about a blend, an alloy, an assortment, an ensemble? Combine units? purposes? appeals? ideas? I can bring together _____ and _____ to _____.

Adapt What can you adapt for use as a solution? What else is like this? What other idea does this suggest? Does past offer a parallel? What could I copy? Who could I emulate? I can adapt _____ in this way _____ to _____.

Modify Can you change the item in some way? Change meaning, color, motion, sound, smell, form, shape? Other changes? Also: *Magnify*: What can you add? More time? Greater frequency? Stronger? Higher? Longer? Thicker? Extra value? Plus ingredient? Duplicate? Multiply? Exaggerate? And: *Minify*: What can you remove? Smaller? Condensed? Mini? Lower? Shorter? Lighter? Omit? Streamline? Split up? Understate? I can change _____ in this way ... to _____

Put to other uses How can you put the thing to different or other uses? New ways to use as is? if it is modified? I can re-use _____ in this way _____ by _____.

Eliminate/Elaborate What can you eliminate? Remove something? Eliminate waste? Reduce time? Reduce effort? Cut costs? And *Elaborate* What can be expanded or developed more? I can eliminate/elaborate _____ by _____.

Rearrange/Reverse What can be rearranged in some way? Interchange components? Other pattern? Other layout? Other sequence? Transpose cause and effect? Change pace? Change schedule? I can rearrange _____ like this _____ such that _____.

 Another prompt to help kids think of ways to fix a problem is reversal. Ask, what would make it worse? For example, what would make a car radio too difficult to use? Buttons that are too small to see or push, too many buttons, buttons too crowded, too far away from the driver and/or passenger, display too small or dim.

Using this info, we can determine that a car radio needs to have large buttons that can be pushed easily and that are located within easy reach of the driver and passenger. The buttons need to have space between them so that they are not

crowded. They need to be uncomplicated, just enough to do the job. The display needs to be big so that it can be easily seen.



Time: This unit should take approximately 40 minutes.



Materials: (for 25 students):

- 25 two-sided copies of student handout
- Examples of items that have been SCAMPERed such as can openers or pens



Safety considerations: None



Preparation:

Before Meeting:

- Make double sided copies of SCAMPER handout (1 for each student)
- Make sure you have enough supplies.
- Decide on which item you want the students to use for the SCAMPER activity.
- Find a couple examples to bring to class.



Procedures:

1. Have students read SCAMPER handout as a group.
2. Go over the water bottle example. Students may have some of the examples with them.
3. Have students work out the exercise in pairs or small groups.
4. If you have time, have a different student share their modification for each of the letters in SCAMPER.
5. Have students use SCAMPER on their problem in their Design Notebook.
6. Have students share some of their ideas with the class.



Ambassadors:

1. Read the student handout prior to the sessions' start.
2. Help set up materials for use by students.
3. Help the students when they get stuck with SCAMPER either on the given activity or on their problem.
4. Have a different item that you have worked through SCAMPER with to use as an example.
5. Talk with individual students and helping them articulate their ideas.
6. Making sure students write down the answers to the questions in their design notebooks.
7. Provide encouragement, support, and suggestions as students complete the activity.

The Scamper activity is adapted from the Intel® Design and Discovery curriculum and <http://creatingminds.org/tools/scamper.htm>