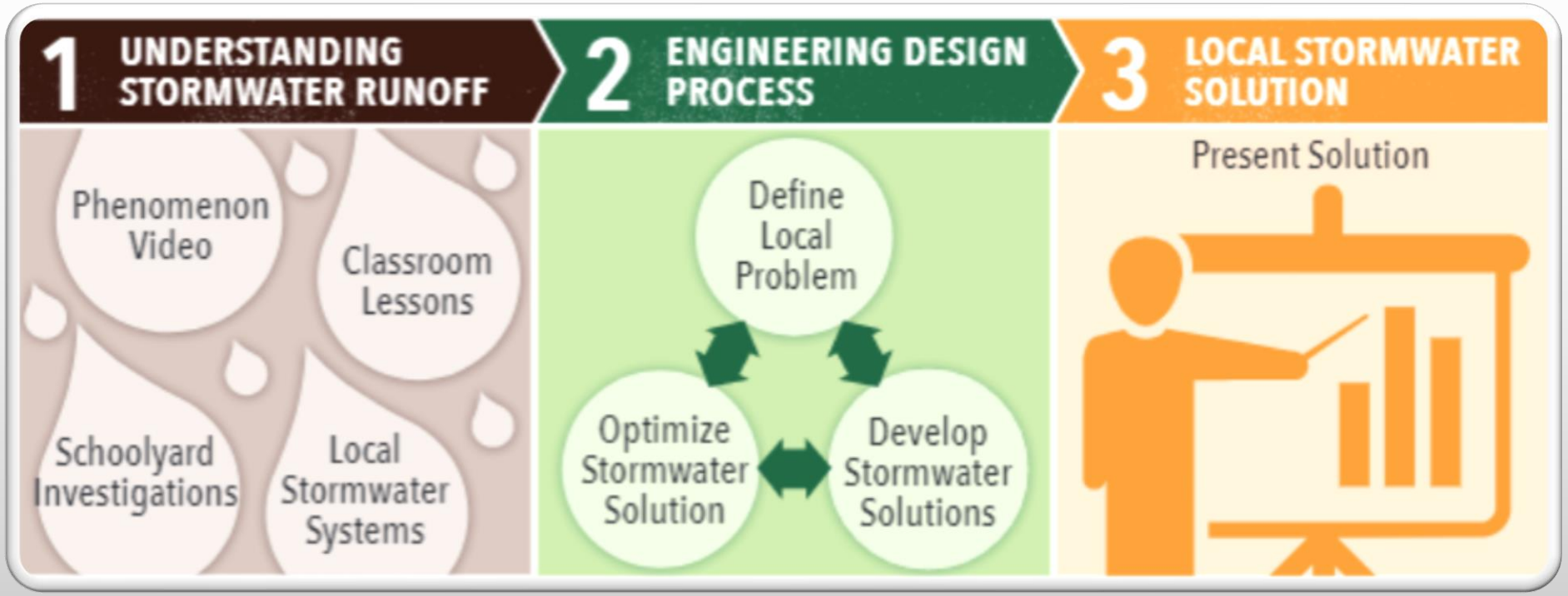


COMMUNITY WATERS SCIENCE UNIT

4TH GRADE

TACOMA PUBLIC SCHOOLS
EVERY STUDENT. EVERY DAY.

ISLANDWOOD™

MODELING SOLUTIONS

Community Waters Science Unit: Lesson 8

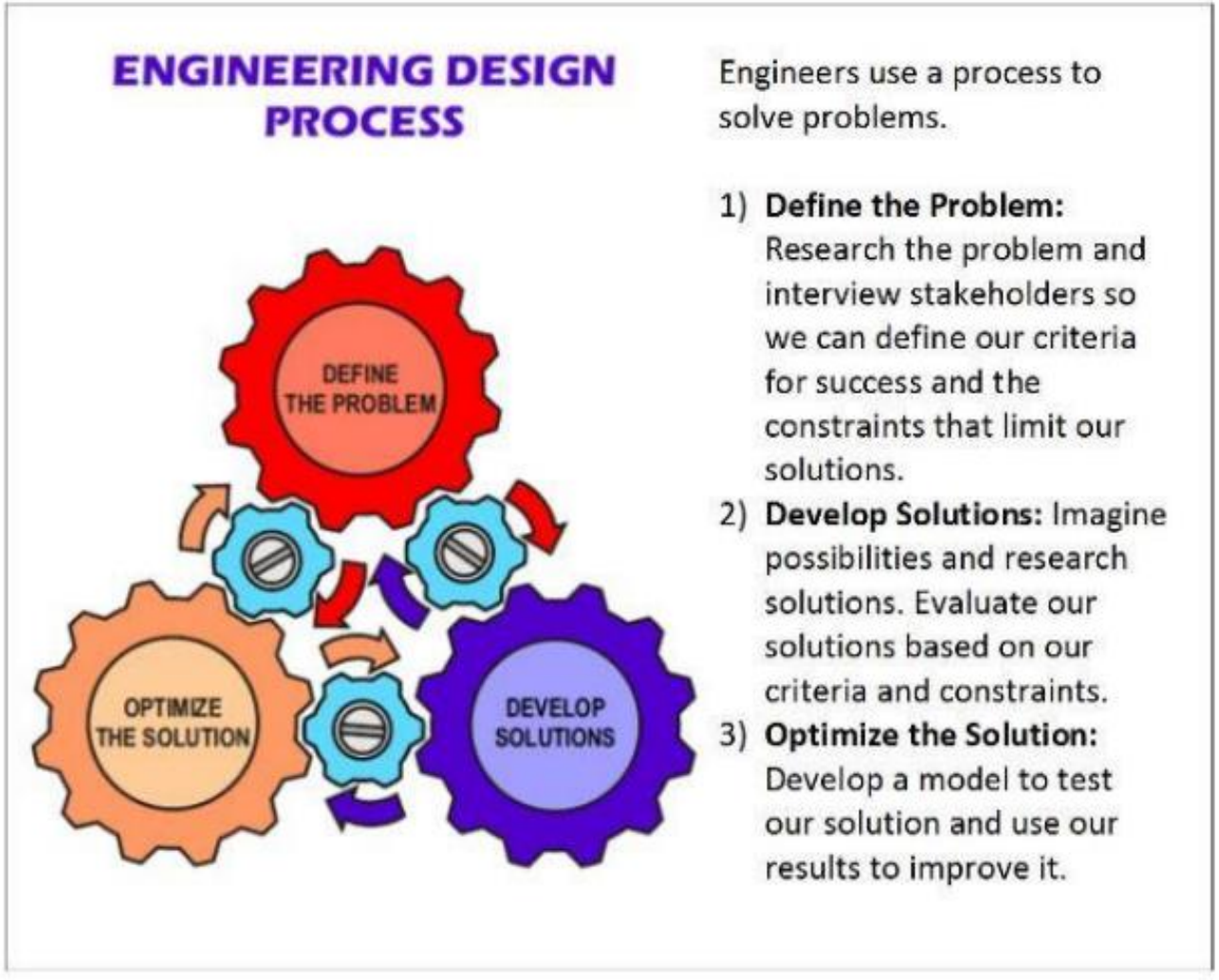
MODELING SOLUTIONS

Focus Question: How do we model our solution?

Learning Target: I can design and create a model of a solution that represents how it would function in the real world.

WHICH SOLUTION DID YOUR TEAM CHOOSE?

ENGINEERING DESIGN PROCESS

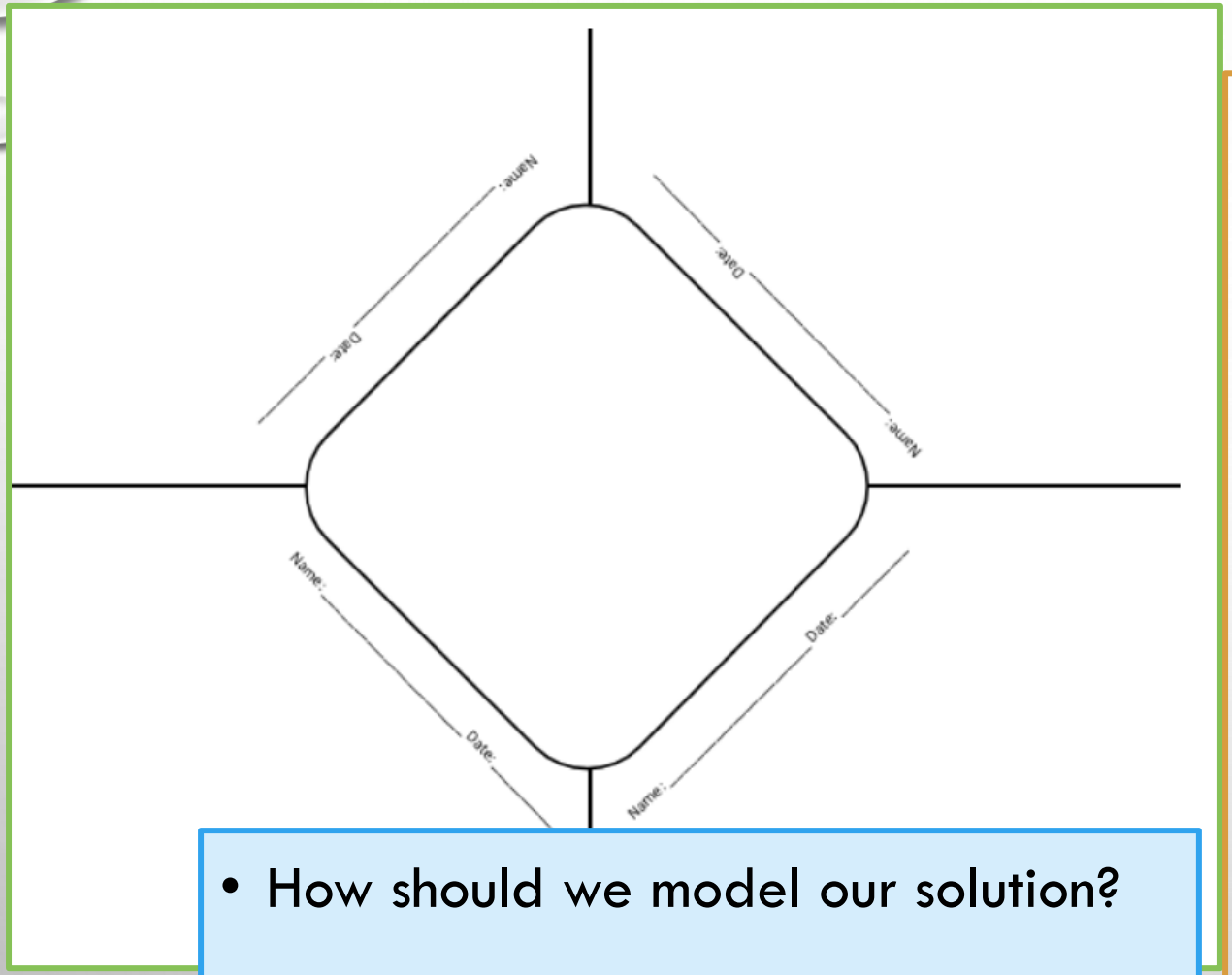


Testing <u>different</u> solutions is an important part of developing and optimizing solutions.

While developing a solution, our tests can help us figure out which parts of the solution could be improved.

You may find "failure points" in your design; if so, you can make changes.

DISCUSSION DIAMOND



- How should we model our solution?
- After hearing everyone's ideas, come to a group consensus!

Steps:

1. Take three minutes for silent thinking and writing time. Draw or write ideas for how to model your solution in your corner of the paper.
2. Share what you wrote or drew with your engineering team. Take time to ask questions, add on, or make connections.
3. Discuss which ideas you want to incorporate into your model.
4. When you are ready, prepare to share your plan.

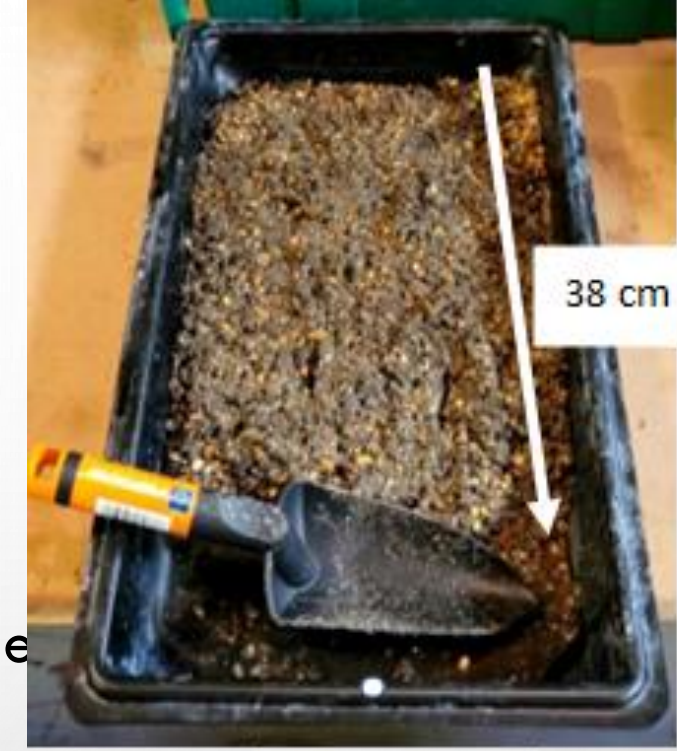
MATERIALS SET UP

Do all of the following before working on modeling your solution:

- Materials Manager brings materials to work area.
- Place one absorbent pad on the table.
- Put the site model on the pad with the drain hole over the edge of the table.
- Place the other pad on the floor and put the basin on the pad under the drain hole so that it will catch any water that comes out of the drain hole.
- Make sure the drain plug is in the hole.

Leave the rain jar in materials area.

Once your model is set up, let an adult know what additional materials you will need from the class supply.



BUILD YOUR SOLUTION!

Foil = impervious surface
Sponges or moss from outside = soil and/or plants
Cup = rain barrel

& RUN AN INITIAL TEST

- Needed: rain jar with 100 ml water
- Observe where the water is flowing – no need to record this data.
- Is the water flowing into the solution you modeled?

Discuss Results:

- What happened to your solution as the water was added?
- Did any “failure points” come up in your initial tests?
- How could you adjust your design to do a better job of collecting stormwater runoff?