**Writing a Replicable Procedure**

**Introduction:** Replicability, or the ability for others to obtain similar results by following the same procedure, is one of the most important qualities of good science. If your experimental results are accurate, then any competent scientist should be able to obtain the same results by following your procedure. If your procedure is not well documented or is difficult to understand, people may not get the same results you did when they follow your procedure.

**Purpose:** Can you write a procedure that allows your classmates to replicate your results?

**Materials:** Sets of building materials, notebook paper, pencil, large piece of cloth (e.g. dish towel)

**Procedure:**

1. Each team of students will have 2 bags of building materials. Place the one marked “B” aside. Open the bag marked “A” and remove the items.

2. Working with your group, use ALL of the items from your bag to build an unusual structure.

3. Write a set of instructions that provide clear, precise directions for how to build your structure. As you are writing your instructions consider whether the instructions are clear enough for others to follow. Write your instructions in a stepwise fashion. For example:

Step 1. Place the red square on the table to provide a base.

Step 2. Take the blue triangle and……

4. Write your instructions for how to build your structure in the space on the back of this page.

5. Cover your structure with the cloth and leave the instructions on top of the cloth.

6. Find the station with the number that matches your “B” bag. Without looking under the cloth, use the instructions at that station to build a structure using your “B” materials.

7. When you are finished, remove the cover to see how well you were able to replicate the structure.

8. Return to your “A” station to see how well another group was able to replicate your structure using your instructions, and complete the reflection questions.

Adapted from “The Scientific Method: Can You Write a Clear and Concise Lab Procedure?” by Amy Brown, freely available at https://www.teacherspayteachers.com/Product/Scientific-Method-Can-You-Write-a-Clear-Lab-Procedure-410139

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**Reflection Questions:**

1. Were your instructions written clearly enough for the other team to follow? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. How close was the other team in replicating your structure? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. Which part of the general approach you used in writing your instructions was the most unclear or misleading? How could you change your approach to make it clearer?

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4. Identify one specific step of your instructions that you feel was the most unclear and rewrite that step.

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5. Why is it important that scientists write procedures that can be reproduced or replicated?

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