5th Grade STEM

**Title: Properties of Plastics**

**Description:** Students will test the different kinds of plastic to determine the physical properties of each and predict what each might be used for. They will identify the number of an “unknown” plastic. An inquiry approach could be substituted to allow students to develop their own tests.

**Materials:** numbered plastic pieces (students can bring from home), paper clips, (fingernail hot water, clear plastic cups, tweezers, sparkling seltzer water, salt.

**Time Needed:** 30 minutes

**Safety Issues:** Hot water should be handled with care.

**Procedures:**

1. If you want students to bring in plastic items, ask a day or two ahead of this activity. You might collect some of the higher number plastics yourself because it is less likely that students will find these at home. Do not test plastic #7, it contains BPA, now thought to be hazardous under some circumstances.
2. Cut into narrow strips the plastics that you have and place in contains labeled with the plastics’ number. If you wish to extend this activity, pick one plastic to be the “unknown” and do not tell students what its number is. Assemble other materials.
3. Ask students what a computer case would be made of if there were no plastics. They may come up with answers but no other substance has the properties of plastic that make it so flexible, strong and lightweight.
4. Cut into narrow strips the plastics that you have and place in contains labeled with the plastics’ number. Assemble other materials.
5. Handout the student sheet and read the introduction with students.
6. Read the lab procedures with students and describe the location of materials.
7. All students time to work on the lab.
8. Ask student groups to share what they found or combine the results on a Google doc.

5th Grade STEM – Plastics Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Introduction:** Plastics are used for many purposes and have replaced other materials that were once used. How is one plastic different from another? What properties can be tested?

**Directions:**

1. Write down the tests you will design for the plastics in the first column of the table.
2. Write the number of the plastic and something about it that will help you remember which one it is on the top row.
3. Perform the tests you designed. Write down what happens on your table.
4. Describe best use for each plastic based on its physical properties.

Plastic Number and Color

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Describe the test: |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| What would be a good use for this plastic? |  |  |  |  |