



PLASTIC FLOWERS - A SCIENCE EXPERIMENT

Copyright 2011 Roger Whiting
Free to share and adapt
for educational use
www.incredibleartfactory.com



Essential Question:

How does an artist decide which art material to use for his/her project?

Objective -

Collect and analyze data

Use a variety of different art materials and compare their visual and physical properties

Understand opacity in terms of **opaque, translucent, and clear (transparent)**

View examples of how light is used as a contributing element to works of art

(Optional) - Create a hypothesis and compare results to the hypothesis

- Evaluate data and make conclusions based on data

Materials Needed:

Craft sticks

Clear plastic cups

Glue or Tape

Scissors

Construction paper (optional)

Sand and/or gravel

(Plus at least 4 of the following):

Crayons

Markers

Fingerpaints

Dry-erase markers

Tempera paint

Watercolor paint



PLASTIC FLOWERS - A SCIENCE EXPERIMENT

Copyright 2011 Roger Whiting
Free to share and adapt
for educational use
www.incredibleartfactory.com

Acrylic paint

Modeling:

Show the “Incredible Art Factory Episode 2: Light” video at <http://www.youtube.com/watch?v=TL3g0lq8NH0> After the clip explaining the difference between opaque, translucent, and transparent opacities, pause the video and ask the students to name different objects or materials that fit each of those categories (i.e. steel is opaque, tree sap is translucent, glass is clear (but sometimes translucent or opaque)). Resume the video, and pause the video during the interview with Amber DeBirk to identify to which category(ies) of opacity each of her works of art can be classified.

Demonstrate to the students how to create a plastic flower (glue or tape craft sticks together for the stem, glue or tape the craft sticks to the bottom of the cup, and then cut curves, triangles, or other shapes from the cup to make the petals of the flower (see picture and diagram). Then create a second plastic flower and let the students create theirs at the same time.

Explain to the students that different art materials have different physical and visual properties that make them unique from each other. Explain that artists choose their art materials based on where and when their art will be displayed. At times if they are not sure what will work best, they experiment with different art materials, much like scientists, in order to determine what will work best for a given situation.

Explain to the students that they will be decorating their cups with different art materials, and then performing tests to find out the opacity, the aesthetic value (or beauty), and the durability of different materials. Model this process by using a quick-drying art material (i.e. markers) Decorate the cup with the art material and then use the experiment worksheet to rate the art material based on opacity and aesthetic beauty. When rating opacity, hold the cup up to the light to get the maximum light effect. Have the students rate the art material on their worksheets as well.

Next explain how art, especially outdoor art, is sometimes subjected to different elements or situations that may damage the art. Have the students brainstorm what some of these elements or situations are, and what effects those elements can have on the art (i.e. sun=fading, melting, rain=bleeding, wind=knocking down art, people brushing against art=art scuffed, worn, etc). Next brainstorm how those situations and/or elements can be simulated in the classroom. Explain that the experiment is limited to the effects that the elements have on the art materials, and not on the artwork as a whole. Therefore the experiments should not damage the cups or the sticks; only the materials on the surface. Explain that before performing any tests they should wait for the art materials to dry (this may work best as a 2-day project).

Possible Durability Tests:

- Drip water onto the cup.
- Use a dry paintbrush and lightly brush at the surface
- Roll cup on sand and/or gravel

Demonstrate the durability tests, and have the students fill out the results on their worksheets.

Individual / Group Practice:

Students can work as individuals or groups (at teacher's preference) to complete the rest of the experiment worksheet and then complete the evaluation worksheet (optional for grades K-3).



PLASTIC FLOWERS - A SCIENCE EXPERIMENT

Copyright 2011 Roger Whiting
Free to share and adapt
for educational use
www.incredibleartfactory.com

Hypothesis (optional)

If wishing to teach about how to make a hypothesis, give the students a second worksheet labeled “Hypotheses” at the top, and have them make guesses as to the results of their experiments before performing each experiment. Model this process with the first art material during the modeling stage of instruction.

Assessment:

Students will turn in both the plastic flowers and the worksheet(s).
Grade students according to the following rubric:

	4	3	2	1
Artistic Quality of Plastic Flowers	Flowers are well built and are decorated with a high level of creative detail	Flowers are built well and have some creative details	Flowers not quite built well and/or show minimal effort	Flowers are sloppy and/or falling apart
Experiment Worksheet	Experiment worksheet is complete with logical answers	Worksheet is complete, but answers do not make sense based on materials used	Experiment worksheet is incomplete (at least 3 experiments shown)	Experiments for less than 3 experiments are shown on worksheet.
Evaluation Worksheet (Optional)	Worksheet is complete with an idea of appropriate environment for art materials and logical explanations of why materials are appropriate	Worksheet is complete, but answers do not make sense based on materials used	Worksheet is incomplete (conclusions from at least 3 experiments detailed)	Worksheet is very incomplete (conclusions from less than 3 experiments detailed)

Sample Grading Scale without Evaluation Worksheet

1-2 pts = 60-70%
3-4 pts = 70-80%
5-6 pts = 80=90%
7-8 pts = 90-100%

Sample Grading Scale with Evaluation Worksheet

1-3 pts = 60-70%
4-6 pts = 70-80%
7-9 pts = 80=90%
10-12 pts = 90-100%