

ANCHORAGE MUSEUM

SCIENCE PASSPORT: OBJECTS IN DRAWERS

BACKGROUND INFORMATION

The Anchorage Museum has created a home edition of the Science Passport that uses the important science skills of observation, thoughtful questioning, and experimentation to learn more about the world around the home. This lesson plan asks students to use objects found inside drawers in creative ways.

STUDENTS WILL:

- Identify similarities among a set of objects by sorting them into multiple categories
- Think creatively to invent something using found objects
- Develop fine motor skills by building a tower
- Use data sheets to make and record observations
- Think critically and support answers with evidence

MATERIALS

- Objects from a drawer
- Provided activity sheets
- Writing utensil
- Ruler

RECOMMENDED GRADE LEVEL

Preschool through third

Adapt for K-12 and adult learners

KEY TERMS

Category: a group of objects which have something in common with each other

Sort: to put objects in groups based on things they have in common with each other

Invent: to make a new idea, object, or experience that has not existed before

Invention: a new idea, object, or experience that has not existed before

Prototype: a first design of something that will be tested and improved upon before a final version is made

ACTIVITIES

This lesson plan provides three activity options and explains each of them in detail on the next page. Complete one or more activities in any order.

1. **Activity 1:** Observe - Sort objects into different categories
2. **Activity 2:** Ask - Invent something with objects
3. **Activity 3:** Experiment - How do objects stack



ACTIVITY 1 - OBSERVE

Sort objects into different categories

[10-30 minutes]

In this activity, you will select a drawer in your house and decide different ways to sort the objects inside. Complete **Appendix A** to help guide your sorting.

Extensions: Repeat for drawers containing different types of objects. Graph the number of items placed into each category.

ACTIVITY 2 - ASK

Invent something with objects

[10-20 minutes]

In this activity, you will choose five objects found inside one drawer and use them to design an invention. Complete **Appendix B** to draw a prototype of your invention.

Extensions: With an adult's permission, build your invention. Repeat activity for a different set of five objects.

ACTIVITY 3 - EXPERIMENT

How do objects stack

[10-60 minutes]

In this activity, you will try to make the tallest possible tower using the objects found inside a drawer. Complete **Appendix C** to record your observations and improve your tower design.

Extension: Repeat for drawers containing different types of objects or place restrictions on what types of objects can be used in the tower.



OBSERVE - HOW CAN I SORT OBJECTS?

Choose a drawer with things inside. It could be full of silverware, clothes, toys, or anything else.

1. a. Sketch what you see when you open the drawer.

b. Why did you choose this drawer?

With an adult's help, carefully empty the drawer. If there are lots of things in the drawer, remove 10-12 objects to sort, or put objects in groups based on things they have in common with each other.

2. Sort objects by color.

Object color	Number of objects	Favorite object of that color
Example: red	Example: 2	Example: pencil

3. Sort objects by size.

Object size	Number of objects	Favorite object of that size
Example: small	Example: 3	Example: dime



OBSERVE - HOW CAN I SORT OBJECTS?

4. Sort objects by what they are made from, also called their material.

Object material	Number of objects	Favorite object of that material
Example: metal	Example: 6	Example: paper clip

You sorted the same objects into the different categories of color, size, and material. Categories are groupings of objects which have something in common with each other.

5. Can any of your objects fit into more than one category? (Example: The paper clip is both metal and small.)

6. What other categories can you sort your objects into?

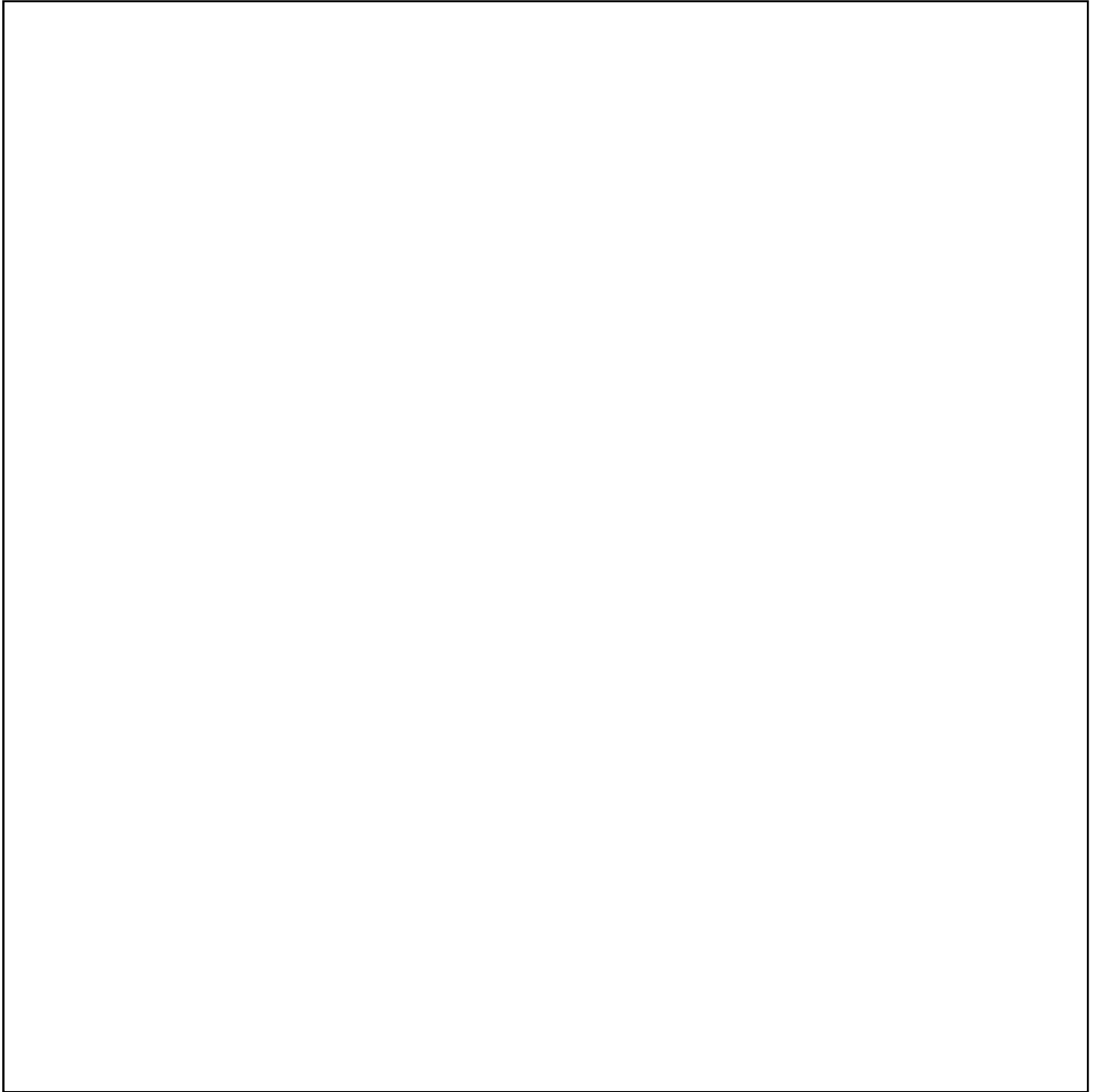
Optional Game: One is not like the other

Select four objects that fit into a category of your choosing. Then add a fifth object that does not belong in that category. Have someone guess which object is not like the others and give their reason for thinking so. Play multiple rounds and take turns creating categories and guessing.



ASK - WHAT CAN I INVENT WITH THESE OBJECTS?

4. Draw a prototype of your invention. A prototype is a first design of something that will be tested and improved upon before a final version is made. Add labels so someone else can understand your invention.

***Optional Extension: Build your invention***

Share your prototype drawing with an adult and get permission to build your invention. Consider how you will connect the objects together. Even if you do not have all the materials you need, you can add more details to your drawing to show what materials you would like to use.



EXPERIMENT - HOW CAN I MAKE THE TALLEST TOWER?

Choose a drawer with things inside. It could be full of silverware, clothes, toys, or anything else. With an adult's help, carefully empty the drawer.

1. You will use these objects to try to build the tallest tower possible. Sketch your tower design. Label what you will use for the bottom, middle, and top of your tower.

2. Why did you decide to use those objects at the bottom, middle, and top?

3. Build your tower. Use a ruler to measure its height. My first tower was _____ inches/feet tall.

4. What about your tower design worked well?



EXPERIMENT - HOW CAN I MAKE THE TALLEST TOWER?

5. What about your tower design did not work?

6. What do you want to try differently for your second tower? How tall do you think your second tower will be?

7. Build your tower. Use a ruler to measure its height. My second tower was _____ inches/feet tall.

Repeat steps 4-7 as many times as you want to build the tallest tower you can. My tallest tower was _____ inches/feet tall.

8. What objects were easiest to use in a tower? Why are these objects helpful for building a tower?

9. What objects were hardest to use in a tower? Why are these objects not helpful for building a tower?

