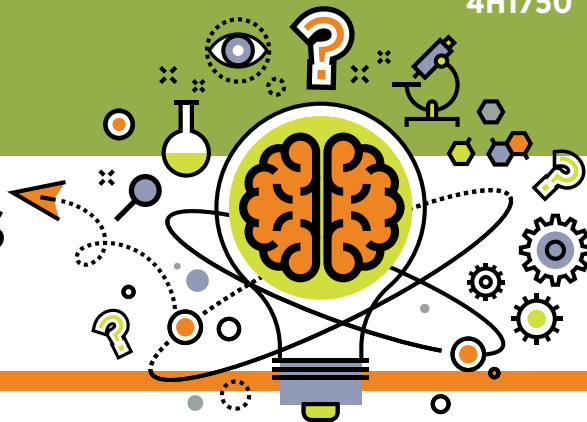


TEACHING SCIENCE

...when you don't know diddly-squat

Why do some animals use camouflage?



Purpose:

The purpose is **not** to teach specific content, but to teach the process of science – asking questions and discovering answers. This activity encourages young people to try to figure things out for themselves rather than just read an answer on the internet or in a book. As a leader, try not to express your opinion, but let the youth engage in arguments based on evidence.

Time required:

20 minutes or multiple days depending on the interest and questions the youth have

Materials:

- 10–15 small everyday items (for example, a toy car, a penny, a marker or other items)
- A chart with no items listed in which participants record the item and its location *or* a chart with the items listed in which participants fill in the location
- Writing utensils
- Clipboards (one per pair of participants)
- Outdoor or indoor path where the everyday items can be placed near similar colored or shaped features (for example, green crayon in grass, brown toy car by a tree stump, and other ideas)

SCIENCE PRACTICE:

Asking questions and defining problems

1. *What is camouflage? Why do you think some animals use camouflage*

SCIENCE PRACTICE:

Planning and carrying out investigations

2. Decide on the area that will be used to place the items. Mark it off so participants know the boundaries of where to look for items. Setting up a loop is an effective path so participants have a starting and ending point.
3. The adult can place the items and have youth search for them, or youth can place the items. If youth place the items, give each participant only one or two so they still have to hunt for the majority of the items.
4. As items are placed, the adult must record the items and their location so they can be collected when the activity is complete.



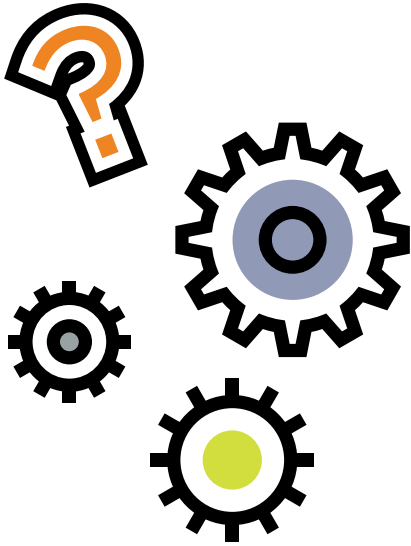
Foam dart in the grass.



Toy truck at the base of the tree.



You do not need all the answers to teach science. You simply need an inquisitive mind and to be willing to carry out an investigation.



5. Make sure all items are visible from the path so youth do not have to go off exploring. Also make sure items are not totally hidden. At least 75 percent of the object should be visible, but can blend into the surroundings.
6. Have youth work in pairs. Tell them the boundaries of the area they are working in and how many items total they need to find. You can provide a chart with the items listed so they know exactly what they are looking for (easier adaptation), or you can provide a chart that leaves the items blank and tell them only the number of items they need to find (harder adaptation).
7. Give each pair of youth either one of the two charts depending on the level of difficulty you prefer to give them. Have them slowly walk the path. Space the pairs out by about 30 seconds so each pair has some room to move through the designated area. Have each pair record the items they see and where they see them. Tell them not to touch or pick up the items. Ask them to quietly discuss what they see so they don't accidentally tell other pairs where or what items are.

Sample Chart With Items. (The items can be left blank to make it more challenging.)

Item	Left or right of trail (circle one)	Location description
Penny	Left/right	
Green crayon	Left/right	
Small toy truck	Left/right	

SCIENCE PRACTICE:
Using mathematics and computational thinking

8. Have each pair turn in their completed chart.
9. Compile the data onto one sheet and discuss what and how many items were found.

SCIENCE PRACTICE:
Analyzing and interpreting data

10. *Were there some items everyone saw? Were there any items that no one saw? What factors contribute to camouflage? Shape? Color? Texture? Size?*

SCIENCE PRACTICE:
Constructing explanations and designing solutions

11. *Why do you think some items were easier to see than others? How do multiple factors contribute to camouflage? Are some factors more effective than others in some situations?*



SCIENCE PRACTICE:

Engaging in argument from evidence

12. Discuss why some animals use camouflage and how different factors influence the effectiveness of an animal's camouflage. *Can camouflage strategies change based on the time of year? What other environmental influence might impact camouflage?*

Other thoughts:

- ▶ Do you think camouflage is only used by prey animals?
- ▶ Do you think predators use camouflage?
- ▶ How do humans use camouflage?
- ▶ When and why might humans use camouflage?

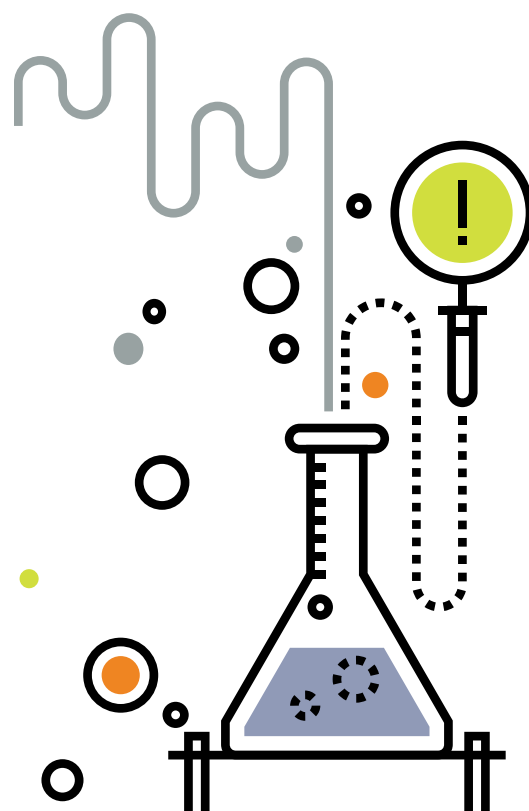
Science & Engineering Practices:

These eight Science and Engineering Practices come from *A Framework for K-12 Science Education* (National Research Council, 2012, p. 42). These research-based best practices for engaging youth in science are connected to in-school science standards that all children must meet.

- ▶ Asking questions and defining problems
- ▶ Developing and using models
- ▶ Planning and carrying out investigations
- ▶ Analyzing and interpreting data
- ▶ Using mathematics and computational thinking
- ▶ Constructing explanations and designing solutions
- ▶ Engaging in argument from evidence
- ▶ Obtaining, evaluating, and communicating information

Reference

National Research Council. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: National Academies Press.



MSU is an affirmative-action, equal-opportunity employer, committed to achieving excellence through a diverse workforce and inclusive culture that encourages all people to reach their full potential. Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status or veteran status. Issued in furtherance of MSU Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Jeffrey W. Dwyer, Director, MSU Extension, East Lansing, MI 48824. This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension or bias against those not mentioned. The 4-H Name and Emblem have special protections from Congress, protected by code 18 USC 707. 1P-Web-05:2019-PA/RR WCAG 2.0

