SCIENCE FAIR CENTRAL

Grades 6–12

THE HOME DEPOT VIRTUAL FIELD TRIP

Objectives

Students will:

- **Discover** the role that tools play in everyday life.
- **Understand** the way animals use body parts and items in nature as tools.
- **Compare** the use of tools between animals and humans.
- **Use** engineering and design skills to plan a "DIY" project.

Overview

Join us with your students to give them the tools to embrace DIY projects and start making things happen in their everyday lives with the **Operation Build It** Virtual Field Trip. Students will be joined by super skilled DIYers as they learn how to set-up a workshop anywhere and tackle real challenges that they are passionate about.

Materials

- Device with the ability to project, one per educator
- Device with access to the internet, one per student or group
- Pencil, one per student
- **WebQuest** student handout, one per student or group
- **Using Tools** student handout, one per student
- **My DIY** student handout, one per student

Using This Guide

This supplemental guide will provide you with three activities to optionally enhance your use of the Virtual Field Trip in your classroom. Use of the Virtual Field Trip is flexible—it can be watched as a stand-alone resource, or you can facilitate one

or more of the included activities. The "Before the Field Trip" activity should be completed before watching, and it will provide an opportunity for you to engage your students in the topics they will learn about during the video. The "During the Field Trip" activity consists of a graphic organizer that students can use to keep track of their learning while they are watching the Virtual Field Trip. Finally, the "After the Field Trip" activity provides students with a way to apply their learning or challenges them to think about a topic in a new way after they have viewed the video.

- *Teacher Note: Remember to always stress the importance of appropriate safety measures with all tools and the need for adult supervision with more complex or power tools.*

Before the Field Trip (30–45 minutes)

1. Engage students in the upcoming activities by asking one or more of the following open-ended questions:
   - What do you think of when you hear the word "tools"?
   - Are tools something you use often?
   - Do tools play a role in the animal kingdom?
   - Do you see yourself using tools in your future career?
   - What are some ways to stay safe when using tools?

2. Explain that tools are anything that extends an individual's abilities. A tool can be as simple as a stick or as complex as a computer.

3. If students will be working in groups, divide them now. Assign each student or group one of the following animals: gorilla, elephant, sea otter, octopus, or mouse.

4. Distribute one **WebQuest** handout and a device with internet access to each student or group. Read through the instructions and each of the questions. Instruct students to write their assigned animal next to number 2 on the handout.

5. Explain that in preparation for learning some interesting and innovative ways to use tools in a workshop during the virtual field trip, they will be investigating creative ways that animals use tools in nature.

6. Give students time to explore and answer questions.
   - *Note:* You may choose to allow students free choice in their internet research or to provide website suggestions or useful search terms/phrases. Examples might include:
     - Tool Use by Animals (https://bit.ly/3Np4DRl)
     - Tool Use—Animal Behaviour (https://bit.ly/3Nb5rsF)
     - "Animal tools"

- "Tools used by _____"
- "How does a/an _____ use tools?"
- Invite students to share their conclusions with the class.

During the Field Trip (45–60 minutes, including the video)

1. Remind students that it is almost impossible to go through the day without using a tool, whether you're a human or an animal. While most tool use is out of necessity, there are fun ways to use tools, too. One of these fun ways is "DIY" or "Do It Yourself" projects!

2. Distribute the **Using Tools** handout. Read through the instructions. Give students time to record their prior knowledge in the first two columns.

3. Play the **Operation Build It** Virtual Field Trip, reminding students to record their new learning on their charts throughout. Alternatively, you can instruct students to focus on watching the video and give time after watching to record new learning.

4. After the Virtual Field Trip, have students share a few of their ideas and reflect on their key takeaways.

5. Preview the students' next session in which they will be brainstorming a DIY project and creating a plan for completion.

After the Field Trip (45–60 minutes)

1. Remind students of the meaning of "DIY." Ask a few volunteers to share what DIY ideas were shared during the Virtual Field Trip.

2. Explain to students that during this session, they will brainstorm possible DIY project ideas and play the role of engineers and builders who start a project with a basic plan.

3. Distribute a **My DIY** handout to each student.

4. Give the students time to independently brainstorm ideas of things they would like to "DIY." Alternatively, facilitate a group brainstorming session and write all of the ideas on the board before giving students time to record the ideas they like or ideas that have been inspired by the exercise.

5. Next, instruct students to spend 2–3 minutes looking at their brainstorming list and to choose *one* project idea. Do not spend any more time than that, as students might suffer from decision paralysis if given too much time.

6. After students have committed to a project idea, they need to think through what they will need to complete or construct their project. This includes not only all tools, as they learned about in the video, but also all other supplies from paper to water! Don't forget

to remind them how important safety is when using tools. Will they need extra adult supervision or safety equipment?

7. Finally, students need to compose a plan or list of steps for completing their project. Remind them of the Home Depot Kids Workshops they learned about in the Virtual Field Trip. Each comes with simple but complete instructions for building the final project.

8. Invite several volunteers to share their project ideas with the class.

9. If time allows in future sessions, work with students to procure needed supplies and tools so they can work to complete their DIY projects. Adding an element of feedback, either in the planning stage or as an iteration phase, can also be beneficial in learning the design process as they play the role of engineers and builders.

Possible Learning Extension

- Facilitate short research into trade careers that regularly use tools like the ones discussed in the video. Host a "tool-based" classroom job fair in which students or groups can share what is involved in a career, what kind of education or training is needed, what tools are regularly used, what salary can be expected, etc.

- Introduce students to the term "upcycle." Have the class brainstorm ways they can upcycle a product into a new item that will be useful to people, beneficial to the community, raise funds, or solve some sort of problem. As a class, organize a "DIY Upcycle Initiative" in which students work to create, market, and distribute their "new" product.

National Standards

### National Content Standards Alignment for Supplemental Activities

- CCSS in English Language Arts

  - **CCSS.ELA-LITERACY.RST.7:** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually.

  - **CCSS.ELA-LITERACY.SL.1.C:** Pose and respond to specific questions to clarify or follow up on information and make comments that contribute to the discussion and link to the remarks of others.

  - **CCSS.ELA-LITERACY.SL.1.D:** Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

  - **CCSS.ELA-LITERACY.W.2.D:** Use precise language and domain-specific vocabulary to inform about or explain the topic.

  - **CCSS.ELA-LITERACY.W.7:** Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

- Science and Engineering Practices
  - Asking questions
  - Developing and using models
  - Constructing explanations and designing solutions
- Common Career Technical Core Standards
  - **AC-2:** Use architecture and construction skills to create and manage a project.
  - **AC-CST-7:** Compare and contrast the building systems and components for a given project.
  - **AC-CST-8:** Demonstrate the construction crafts required for each phase of a given project.
  - **AC-CST-9:** Safely use and maintain appropriate tools, machinery, equipment, and resources to accomplish construction project goals.

WebQuest | Part 1 of 2

Directions:

1. Using the search engine of your choice, provide an answer for each item.

2. Respond to the "Draw Conclusions" question.
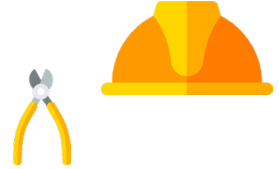
Define **tool** in your own words:

_____

_____

_____

_____

Assigned animal: _____

In the chart below, record the body part or item that the animal uses as a tool and what task they can accomplish with each tool:

Body Part/Item	Task

WebQuest | Part 2 of 2

3. For each task the animal accomplishes with its tool, write which tool you would use as a human to accomplish the same task:

Task	Tool

Draw conclusions: Based on your investigation, how important are tools to everyday life?

_____

_____

_____

_____

_____

_____

Using Tools

Directions:

1. Before you watch the video, fill in the first two columns of the chart with information you already know. After the video, add new things that you have learned to the third column.

Things I Know About Tools	Things I Know About "DIY"	New Things I Learned

My DIY

Brainstorm ideas of fun things you'd like to create or construct yourself:

Pick one item from your list to focus on for your project: _____

Record the supplies and tools you'll need to complete your project:

List the steps you'll take or your plan for completing your project: