

ROBOT REVOLUTION EXHIBIT GUIDE

» FOCUSING YOUR FIELD TRIP

AT A GLANCE

Students will record their observations and experiences in the *Robot Revolution* exhibit and complete a follow-up writing exercise in the classroom. development. and learning about societal impacts on robot development.

OBJECTIVES

Students will:

- Have a meaningful museum experience.
- Connect their museum experience to the classroom.
- Learn what robots are and what they can do.

KEY VOCABULARY

Observation

NEXT GENERATION SCIENCE STANDARDS

Science and Engineering Practices:

- Constructing Explanations and Designing Solutions
- Obtaining, Evaluating and Communicating Information

PACE YOURSELF

- 30 minutes in the classroom before your field trip
- 30 minutes in the exhibit during your field trip
- 30 minutes in the classroom after your field trip



ADVANCE PREPARATION

Print a *Robot Revolution* Exhibit Guide worksheet for each student. Print and assemble an extra one to use as an example for students. Print copies of the My Robot worksheet to use after the field trip.



MATERIALS

Per group:

- Copy of *Robot Revolution* Exhibit Guide
- Copy of My Robot worksheet
- Pencil
- Markers or crayons (optional)

Per student:

- Stapler
- Scissors



WARM UP

Complete the “What is a Robot?” lesson. This is optional, but recommended.

Briefly define observation. It involves using all five senses to receive information from the outside world. Making observations is an important part of science.



ACTIVITY

In the classroom before your field trip

1. Tell students they will record their observations, experiences and thoughts while they explore the *Robot Revolution* exhibit. They will make observations in the exhibit to better understand what robots are. They will then use their observations to design their own robot after their field trip.
2. Show them an example of an assembled *Robot Revolution* Exhibit Guide. Briefly read each page and discuss what they will do in the exhibit.
3. Pass out materials and give them time to assemble their exhibit guides. Cut on the dotted lines and staple the pages together with two staples, like a book. Be sure to staple the pages together in numerical order.

ROBOT REVOLUTION EXHIBIT GUIDE

In the exhibit during your field trip

1. Ensure each student has their *Robot Revolution* Exhibit Guide and a pencil. Consider giving each chaperone an Exhibit Guide and having them fill it out as well.
2. Walk around with students as they explore the exhibit. Make sure they are recording their observations and experiences on each page. If they need more room, they can use the back of each page. Encourage students to not only record what they see and learn, but to also what they feel and experience.
3. When everyone has explored the exhibit, collect their pencils and Exhibit Guides to make sure they are not lost or dropped in the museum.

In the classroom after your field trip

1. Give each student their *Robot Revolution* Exhibit Guide and the My Robot worksheet.
2. Tell students to use their observations noted in their Exhibit Guide to design their own robot on the My Robot worksheet. They will first determine what their robot will be used for, i.e., its purpose. Encourage them to create a robot that performs a specific job which improves the way they live, work, or play. For example, have them think of a robot that could help them get ready for school faster.
3. Have students fill out the My Robot worksheet, drawing their robot and answering questions to determine how it works. They can even color their drawing.



CHECK FOR UNDERSTANDING

- What is the purpose of this robot?
- In what ways is this robot similar to or different than humans? What can it do that humans cannot?
- How does this robot sense, plan, and act?
- How can this robot make our lives better?



WHAT'S HAPPENING?

Making **observations** is a central component of science and the scientific method. It involves receiving information from the outside world through the senses and recording information using scientific instruments.



DIFFERENTIATED INSTRUCTION

Tell students the purpose of their robot before they create it. For example, they must create a robot that can deliver food and water to people after a natural disaster.

Have students describe their finished robot to each other and to the class.



EXHIBIT GUIDE

NAME: _____

Instructions: Cut pages, assemble in numerical order and staple to form a booklet.



SMARTS

Robots are “smart” because they process internal and external information that guides their actions.

Draw and describe a robot that seems to be “smart.”



1

COOPERATION

Robots work with humans and other robots to make our lives better.

2

Find a robot and describe what it is doing.

How could it work with humans to make our lives better?

3

SENSE

All robots gather information with **sensors**, such as microphones, lights and cameras.

Draw a robot and label its **sensors**.

4

SKILLS

Robots have different “hands” depending on what they are designed to do.

Find a robot “hand” and draw it.

How is it different than your hand?

5



PLAN

All robots process information to **plan** their actions.

6

Experiment with a robot that **plans** and draw it.

What is the robot's job or purpose?



LOCOMOTION

Draw and explain one way a robot can move around.

7

ACT

All robots **act**, such as move or speak.

8

Make a robot **act**. What is its job or purpose?

What can it do that humans cannot do?

Robots move in different ways, and they can go places humans can't.

MY ROBOT

NAME: _____

Use the information you gathered in the exhibit to create your own robot.

Here is a picture of MY ROBOT:

The purpose of MY ROBOT is to . . .

MY ROBOT has sensors that can. . .

MY ROBOT is “smart” because it can. . .

MY ROBOT can do things humans can't do:
