

SAIL AWAY

Background Information for Activity Leaders

Overview

Using a simple sailboat design as a starting point, children will share their observations, ideas, questions, and hypotheses about how to improve the sailboat’s design. Asking the children to consider the following questions can facilitate the process of invention:

- “Can you improve it?”
- “Can you make it easier to use?”
- “Can you use it in a different way?”

Key Concepts

- Many inventions were created by people who identified problems in their lives and were motivated to come up with new or better ideas to make life easier.
- Innovation requires creativity and trying new things. Inventors draw upon past discoveries, their own observations and experiences, and their special skills and abilities to come up with new ideas.
- Patents grant the right to keep others from making, using, offering for sale, or selling an invention that they do not have rights to in the United States, or importing the invention into the United States, for 20 years.
- Design patents may be granted to anyone who invents a new, original, and ornamental design for an item that will be made and offered for sale.
- A trademark is a word, name, symbol, or device that is used in trade with goods to indicate the source of the goods and to distinguish them from the goods of others.

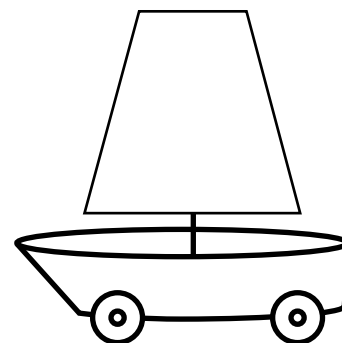
What to Expect

- Children may design sailboats that do not travel by sea or that do not use wind power. All inventions should be accepted as long as the child or group explains what need the invention satisfies.

Example:

A possible modification on the basic sailboat design

My sailboat will have wheels that can be used if the sailboat needs to travel on land. Sailors will no longer be restricted to the sea.



Background Information for Activity Leaders

Common Misconceptions

- *Children may think, “Children can’t be inventors.”*

Inventors come from all ages and backgrounds. For more information, see online resources such as Inventive Kids, <http://www.inventivekids.com>

- *Children may think, “Intellectual property does not belong to children.”*

Patents, trademarks, copyrights, and trade secrets are sometimes referred to as “intellectual property.” Intellectual property protects products that come from the creative mind. It is an asset just like a home, a car, or a bank account. Just like other kinds of property, intellectual property needs to be protected from theft and misuse.

- *Children may think, “It is OK to steal or use someone else’s ideas.”*

It is just as wrong to steal intellectual property, as it is to break into a home, steal a car, or rob a bank.

SAIL AWAY

Suggested List of Materials

Suggested Recycled Items

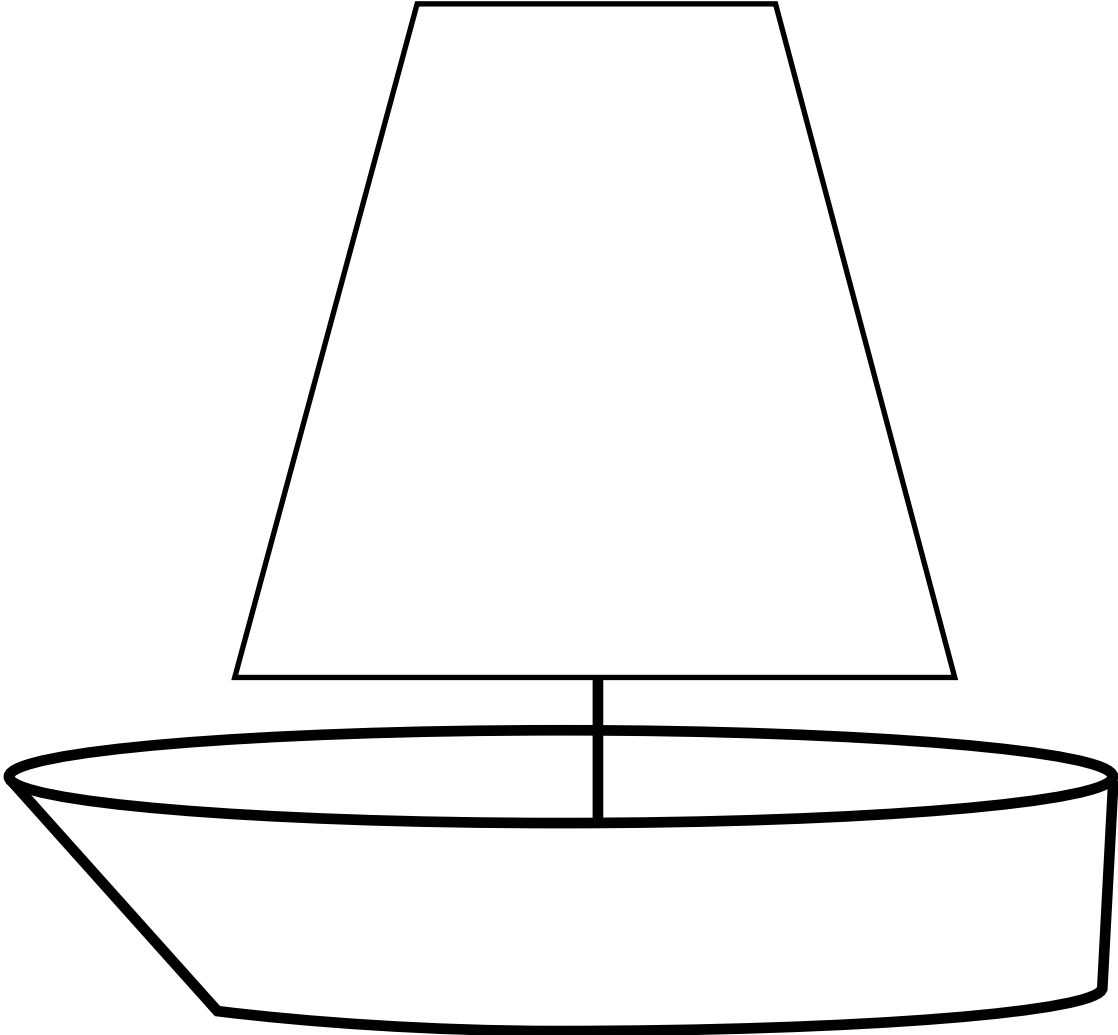
- plastic bottle caps
- broken toys
- construction paper clippings
- corks
- empty plastic snack bowls
- fabric scraps
- empty film canisters
- masking tape
- milk cartons
- packing noodles or foam
- packing materials
- paper towel/toilet paper rolls
- plastic planters
- plastic spoons
- precut sections of cardboard
- string
- pieces of Styrofoam™ from food packages or cafeteria trays
- mismatched Tupperware™
- twigs and sticks
- empty plastic water bottles

Suggested Craft Supplies

- buttons
- clay
- construction paper
- cool glue gun and glue sticks to be used by teacher only
- craft sticks
- crayons
- felt
- paper clips
- pipe cleaners
- plastic straws
- rulers
- scissors
- toothpicks
- white glue
- wooden 'shish-ka-bob' skewers
- yarn
- ribbon
- string

SAIL AWAY

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Basic Sailboat Design Illustration



SAIL AWAY



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Data Collection Sheet

Name: _____

Date: _____

WONDER Draw your sailboat design.

A large rectangular area enclosed by a dotted line, intended for drawing a sailboat design.

RECORD Describe your boat and how it works.

EXPAND Draw the picture you would include in your patent application. Display and label your sailboat's special features.

A large rectangular area enclosed by a dotted line, intended for drawing and labeling special features of a sailboat.

CONCLUDE What did you learn about designing a sailboat?

Set Up the Expedition

Materials:

For the activity leader:

- **Sail Away** Learning Cards
- (1) basic sailboat illustration
- (1) large container filled with tap water
- assortment of recycled items and craft supplies (see suggested list of materials)
- paper towels (enough to clean up)

For each child:

- (1) **Sail Away** Data Collection Sheet

Prepare the demonstration:

1. Place the picture of a simple sailboat where all the children can see it.
2. Become familiar with the stories of each inventor in Step 1 of the Activity Leader Card.

Prepare the exploration:

1. Set out the supplies at each station so that each station has a variety of materials to choose from.
2. Place the large container with water where children can gather around and test their sail boats.

SAIL AWAY

Activity Leader's Guide

Group Size: 2 children

Time: 20 - 40 minutes

Engage

- 1** Gather the children together.

Say:

"I would like to tell you about three very young inventors."

Tell the children the true stories about three young inventors.

- *When Chelsea Lanmon was five years old she noticed that her mother had to go through a lot of trouble changing her baby brother's diapers. To make her mother's job easier she invented the Diaper Pocket. The Diaper Pocket is a diaper that holds basic diaper changing supplies in a small and easy to access pocket.*
- *Chris Haas invented a basketball at the age of nine with hands painted on it to indicate the correct positions to hold the ball when shooting. He had watched his friends miss "easy" shots during basketball practice at school.*
- *When five year old Kelly Reinhart was watching TV shows portraying cowboys wearing holsters she became inspired. She designed a pack to hold a portable video game player and games that ties onto your belt and around your thigh. She then started a company to sell the Thigh Pack.*

- 2** Say:

"These three children demonstrate three simple ways to become inventors. Chelsea improved the design of a diaper, Chris made a basketball easier to use, and Kelly used a cowboy holster in a different way."

SAIL AWAY

Activity Leader's Guide

Say:

"All three of these children received patents on their inventions. This means that the inventor owns the right to the idea and no one else can make, use, or sell their invention for 20 years from the time they applied for the patent."

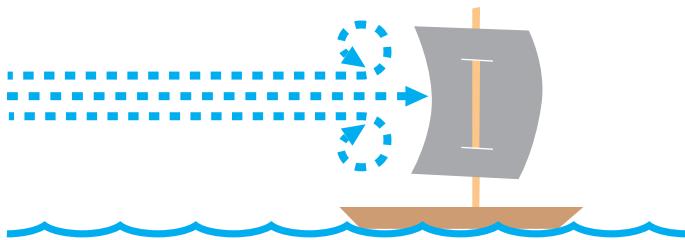
Explore/Expand

- 3** Divide the children into pairs. Distribute the Data Collection Sheets and the Learning Cards.

Say:

"Follow the directions on the Learning Card to invent your own kind of sailboat."

- 4** **Say:**
"This is a picture of a basic sailboat design. You can use the basic design to invent your own sailboat." Display the basic sailboat illustration.



- 5** Allow children enough time to complete the WONDER, EXPLORE, RECORD and EXPAND sections of their Learning Card.

Conclude

- 6** Gather the children together and ask the following questions:

"Who would like to share drawings of their sailboat showcasing all its features?"

"What can your sailboat do?"

"How have you improved the design of a basic sailboat?"

"Why are the improvements you made useful?"


"While doing this activity what did you learn about designing sailboats?"

- 7** **Say:**
"Congratulations! You have earned your 'Ask Me About Design and Construction' stamp. You are ready to tell people about design and construction."

SAIL AWAY!

Expedition Learning Card

? How would you design a new kind of sailboat?

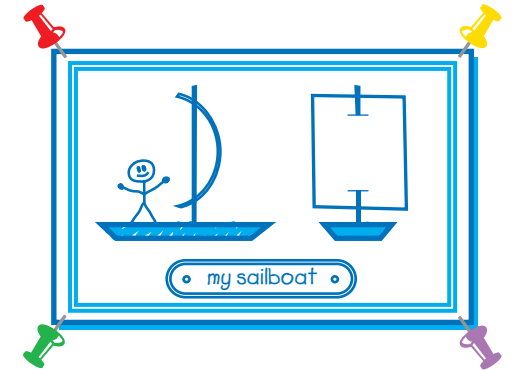
 **invention innovation patent**

 Explore ways to design a model sailboat.

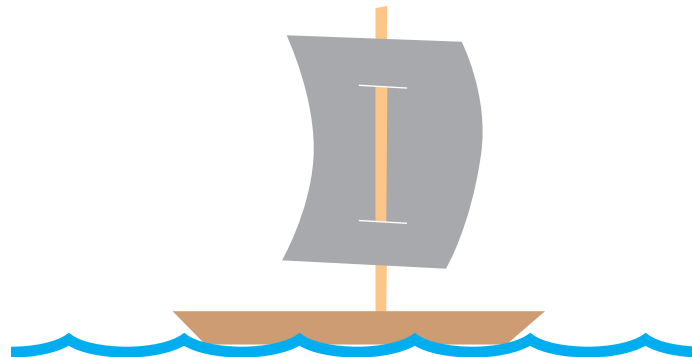
1 WONDER Plan with your partner a way to invent your own kind of sailboat with materials you have been given. As you think about your invention, keep these questions in mind:

- *How can you improve it?*
- *How can you make it easier to use?*
- *How can you use it in a different way?*

 Draw your plan on your Data Collection Sheet.



2 EXPLORE Build the sailboat and test it in the container of water. Remember that inventions often arise by learning from what does not work!



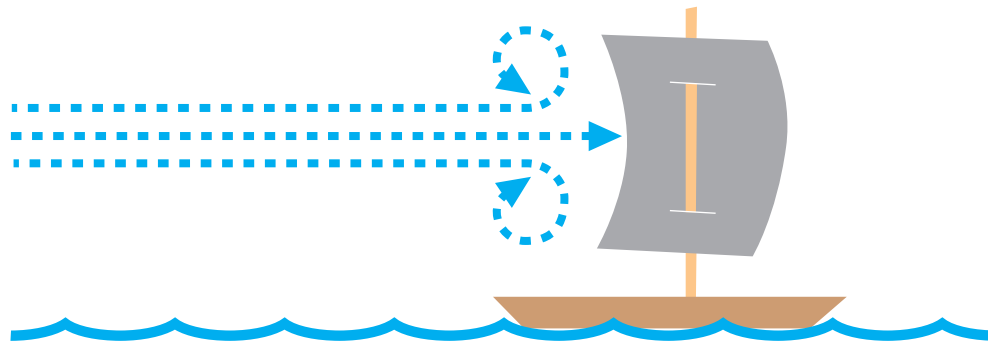
SAIL AWAY!

Expedition Learning Card

3 RECORD

 Make careful observations about your boat and how it works. Record your observations on your Data Collection Sheet.

START



4 EXPAND When inventors apply for a patent they describe their invention. Draw a picture of your sailboat that shows its special features, or innovations.

5 CONCLUDE What did you learn about designing a sailboat?

Discovery

Why did we do that?

- Inventing is a method where you often learn from what does not work.
- Innovation happens when you like trying new things and are creative and original in your ideas.
- Inventions help people.

Congratulations!

You have earned your "Ask Me About Design and Construction" stamp! Now you are ready to tell people about design and construction!

