



### Air of the Wolf

Elective Requirements

Complete the following Requirements.

1. Conduct two of the following investigations to see how air affects different objects:
  - A. Make a paper airplane and fly it five times. Try to make it fly farther by altering its shape. Fly it at least five more times to see if your changes were effective.
  - B. Make a balloon-powered sled or a balloon powered boat. Test your sled or boat with larger and smaller balloons.
  - C. Bounce a basketball that doesn't have enough air in it. Then bounce it when it has the right amount of air in it. Do each one 10 times. Describe how the ball bounces differently when the amount of air changes.
  - D. Roll a tire or ball that doesn't have enough air in it, and then roll it again with the right amount of air. Describe differences in how they move.
2. Complete two of the following:
  - A. With other members of your den, go outside and record the sounds you hear. Identify which of these sounds is the result of moving air.
  - B. Create a musical wind instrument, and play it as part of a den band.
  - C. With an adult, conduct an investigation on how speed can affect sound.
  - D. Make a kite using household materials. With your den or family, explain the rules for safely flying kites. Fly your kite.
  - E. With your family, den, or pack, participate in a kite derby, space derby, or rain gutter regatta. Explain how air helps the vehicle move.



#### *Parent Corner*

Some of the following requirements use different materials. Make sure your Scout does not have an allergy to latex before using balloons and rubber bands for science demonstrations and experiments.



## ELECTIVE ADVENTURES



### Air of the Wolf

Requirement 1A : Paper Airplane

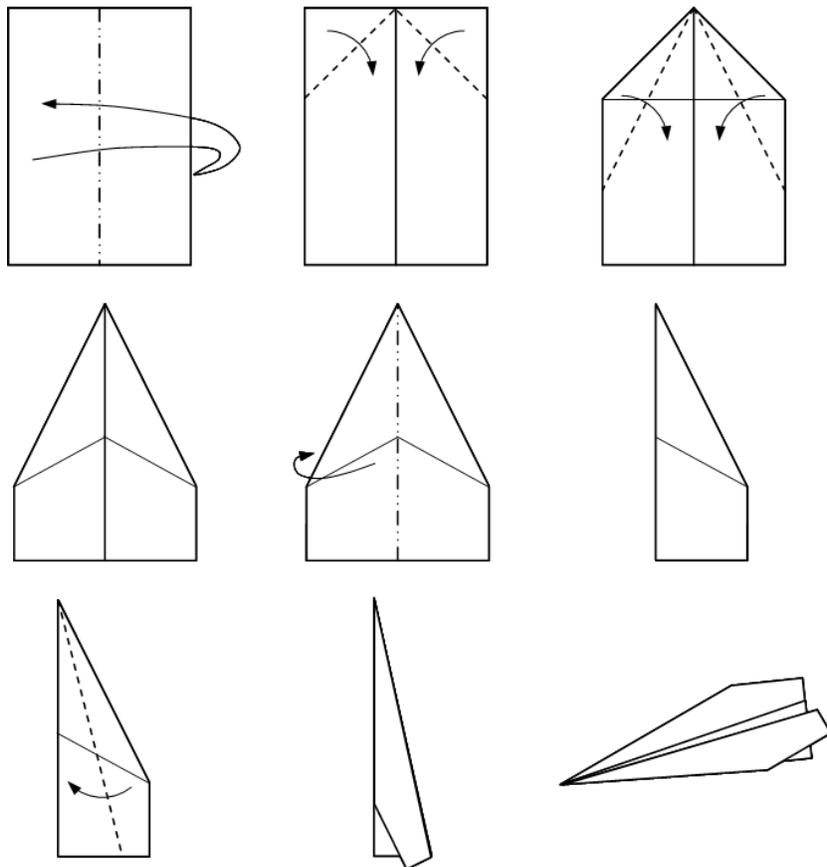
#### Materials Needed

- Paper airplane template
- Paper

#### Instructions

1. Make a paper airplane and fly it five times.
2. Try to make it fly farther by altering its shape.
3. Fly it at least five more times to see if your changes were effective.

#### Paper airplane template



Pee Wee Says

"A good site to find many designs and how-to-fold paper airplane instructions is [foldnfly.com](http://foldnfly.com)"





## ELECTIVE ADVENTURES



### Air of the Wolf

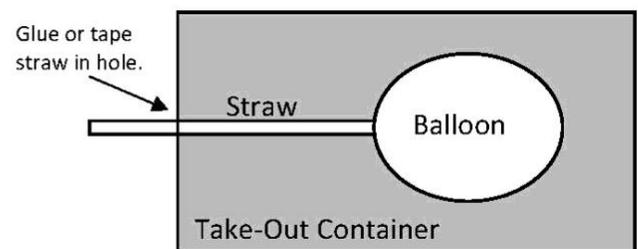
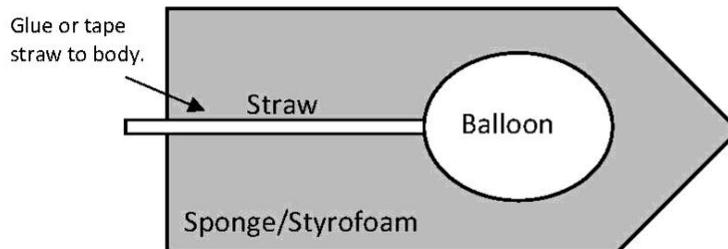
Requirement 1B : Balloon Powered Boat

#### Instructions

- Slide the balloon onto one end of the straw.
- Use the rubber band to secure the balloon in place. Practice inflating the balloon by blowing through the straw to ensure that the balloon is secure.
- Attach the balloon and straw to the boat body.
  - If using a sponge or piece of Styrofoam as the boat body:
    - Optional: Ask an adult to help cut the sponge/Styrofoam into a boat shape.
    - Lay the straw in the center of the body so that the balloon is positioned near the front of the boat and the end of the straw hangs over the back of the boat.
    - Secure the straw in place using glue or tape.
  - If using a plastic carry-out container as the boat body:
    - Poke a hole in the center of one of the short sides of the container.
    - Push the straw through the hole from inside of the boat.
    - Glue or tape around the straw on both sides so that it stays in place.
- With your adult partner's permission, fill a bathtub or kitchen sink with several inches of water.
- Blow through the straw to inflate the balloon. Hold the straw tightly to prevent air from leaking out.
- Place your boat on one side of the tub or sink. Let go of the straw and observe what happens to your boat.
- Try inflating the balloon to different levels. Does it go farther when the balloon is bigger? Does it go faster?
  - Try using balloons of different sizes (if available) to power your boat. Which one works best? Which makes it go farther?

#### Materials Needed

- Uninflated balloons
- Drinking straw
- Rubber band
- Boat Body from something that floats and is fairly stable (two options):
  - A solid body made from a cleaning sponge or a piece of styrofoam
  - A "hollow" body made from a plastic carry-out container
- Tape or hot glue
- Water



#### Pee Wee Says

*"Balloon powered sleds and boats are fun to make, and they run on air! Here's a balloon-powered boat you can make with help from an adult."*



## ELECTIVE ADVENTURES



### Air of the Wolf

Requirement 1C : Basketball

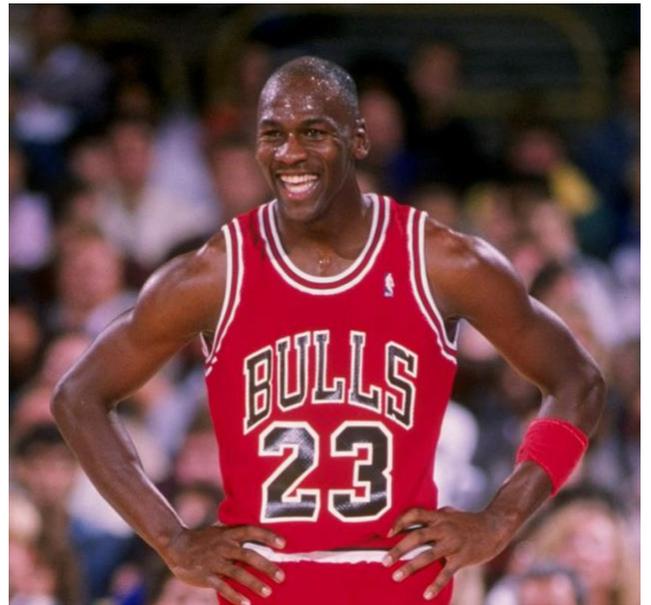
#### Materials Needed

- Basketball (or other ball you can let some air out of and then refill)
- Ball air pump

#### Instructions

1. Have an adult help you release some air from a basketball.
2. Practice bouncing a flat basketball. Bounce it 10 times.
3. Have an adult inflate the basketball.
4. Practice bouncing the basketball. Bounce it 10 times.
5. How were the two experiences different?

Describe how the ball bounces differently when the amount of air changes:



#### Pee Wee Says

*"Did you know that before he became famous, Michael Jordan was just another Scout learning how to tie a knot?"*



## ELECTIVE ADVENTURES

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### Air of the Wolf

Requirement 1D : Flat Tire or Ball

#### Materials Needed

- Tire or ball
- Tire or ball air pump

#### Instructions

1. Have an adult help you release some air from a tire or ball.
2. Roll the flat tire or ball around
3. Now pump up the tire or ball
4. Roll around the inflated tire or ball



What does this exercise show you about air pressure?:



**Pee Wee Says**

*"Have you ever played a game/sport with a flat ball? Did you feel a difference?"*



## ELECTIVE ADVENTURES



### Air of the Wolf

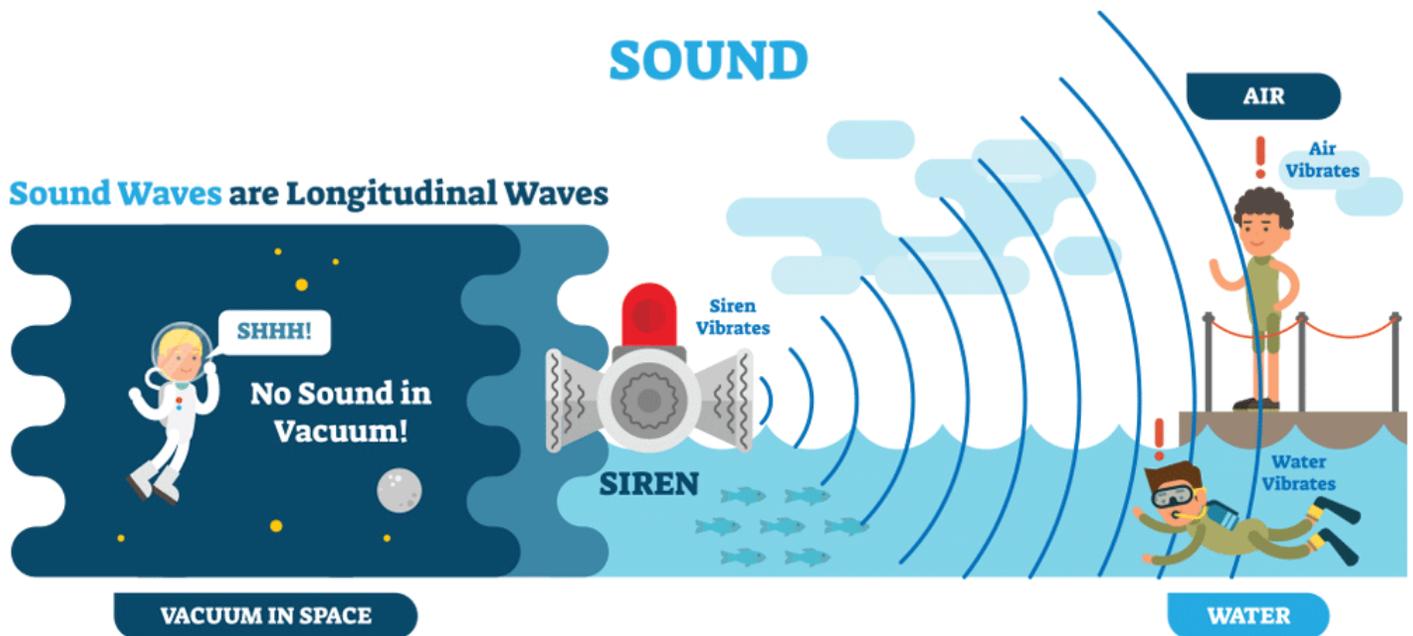
Requirement 2A : Sounds Moving Air Makes

#### Materials Needed

- Pencil or Pen

#### Instructions

1. Go outside and listen. Record the sounds that you hear.



What sounds did you hear?:



#### Pee Wee Says

*"Without air, there would be no sound because sound travels through the air. Moving air pushes things around and the things it moves creates the sounds we associate with wind."*



## ELECTIVE ADVENTURES



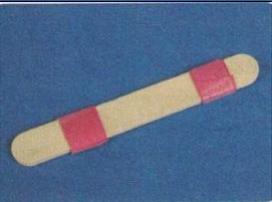
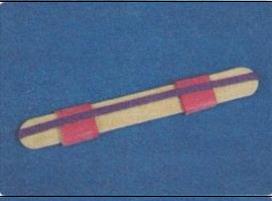
### Air of the Wolf

Requirement 2B : Wooden Harmonica

#### Instructions

#### Materials Needed

- 2 Tongue depressors
- 1 Wide rubber bands
- 2 Skinny rubber bands
- Scissors
- Paper
- Tape

<p>1. Cut two strips of paper the same size as a tongue depressor.</p>	
<p>2. Place one tongue depressor on top of the other. Wrap one paper strip around each end of the tongue depressors. Wrap tape around each loop without touching the tongue depressors.</p>	
<p>3. Slide off one tongue depressor. Stretch the wide rubber band around the length of the tongue depressor and paper loops.</p>	
<p>4. Place the second tongue depressor back on top. Wrap one skinny rubber band around each end outside of each paper loop.</p>	
<p>5. It's time to make music! Blow air through the middle of your harmonica to play. Slide the paper loops to change the pitch.</p>	



Pee Wee Says

*"What do you call a harmonica player's accompanist? Fido!"*