

ISD 622 Office of American Indian Education

# 2nd Grade Science

## Birch Bark Lesson



[CLICK HERE FOR MN STATE STANDARDS](#)

NEXT

# Learning Tools from the Ojibwe/Dakota

## Learning Trunk

- Birch bark canoe
- Birch bark winnowing basket
  - Birch bark basket
- Sample of birch tree
- Samples of birch bark
  - Birch bark biting



# Vocabulary Words

A phenomenon, in a scientific context, is something that is observed to occur or to exist.

In science, phenomena are what cause scientists to ask questions.

In engineering, phenomena are problems that require a solution.

Flexible - able to bend without breaking

Properties - any trait or characteristic

Degrade - to convert an organic compound into a simpler compound

Durable - strong and sturdy enough to use over and over



# Ojibwe Vocabulary Words



Click to hear  
all words

Birch Tree - wiig waas - mitig 

Birch bark - wiig waas 

Canoe - jii maan 

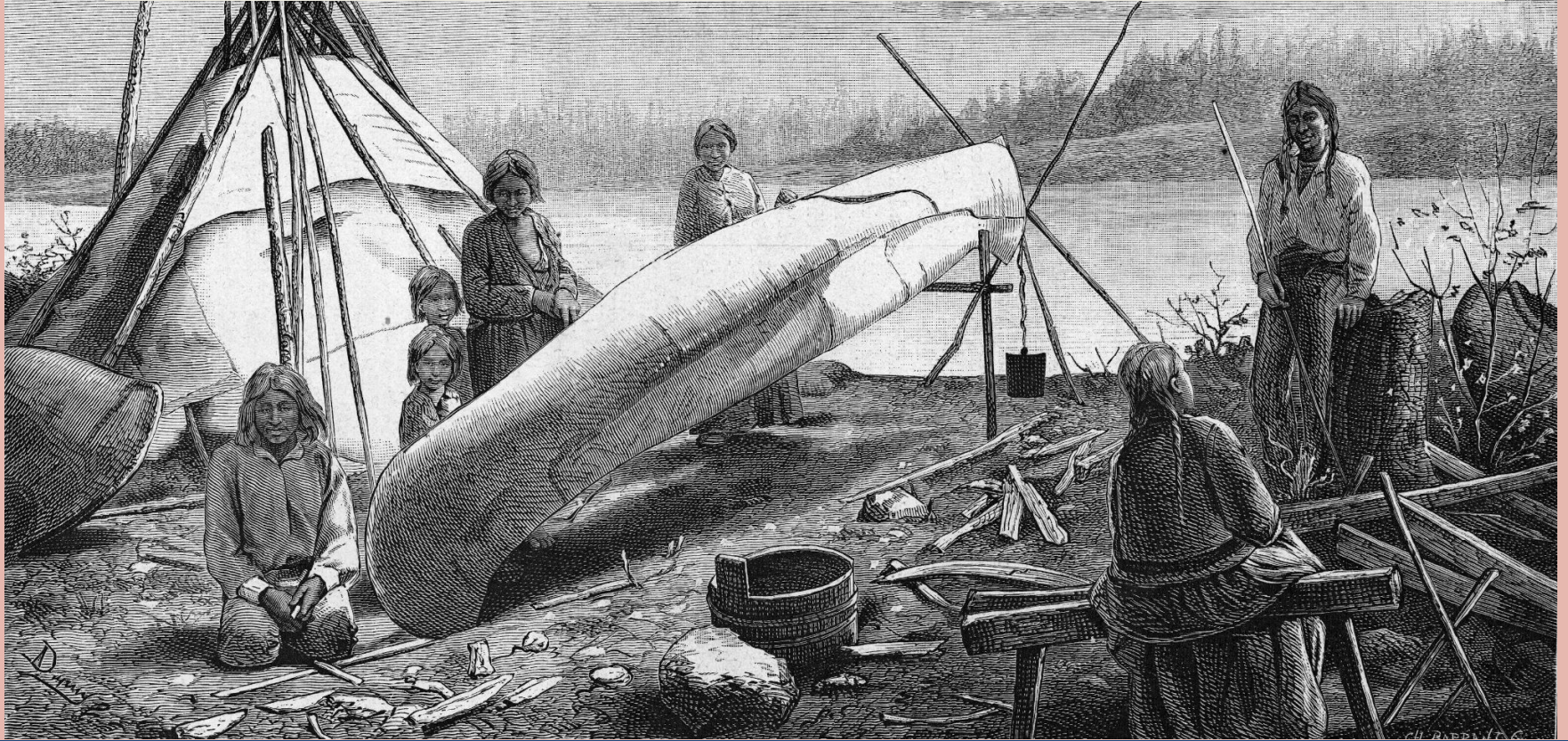
House - waakaa'igan 

Birch Bark Basket - makak 

More words and recordings can be found on the [Ojibwe People's Dictionary](#)



For thousands of years science has been driven by people's needs, solving problems to help them survive or to make their lives easier. For the Ojibwe and many other Woodland tribes asking questions and observation helped solve many problems.



Historically the Ojibwe people lived in an area that has many lakes and streams. They lived their lives moving with the seasons to hunt and gather the things they needed . They often had to portage, or carry their canoe ( **jii maan** ) across land to another body of water to get to where they needed to go.



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# How did the Ojibwe discover what materials made a suitable canoe, lightweight yet strong and durable?



CLICK  
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PLAY

When you put the bark of the birch tree in the water, it floats. It also helps keep water off their houses (waakaa'igan). It must be waterproof with all the layers together the bark is very strong.

For the Ojibwe building a canoe was a family event. Each person had a part to play. After it was decided that birch bark was the best material to use for the hull, or body of the canoe they still had to determine:



You may want to watch a short video showing a contemporary birch bark canoe being made in a traditional way. [Click Here For Video](#)

- The best material to use as a frame (White Cedar- durable/lightweight)
- What they are going to use to sew the pieces of birch bark together, (the roots of the spruce or tamarack tree).
- How will they seal the edges where the birch bark comes together to make them waterproof (with spruce gum).





The same properties that made the bark of the white birch tree an excellent choice to make a durable lightweight canoe for the Ojibwe also contributed to many other useful objects that made life easier in the days before there were stores that people could trade or purchase what they needed.



# Looking at the list of properties of birch bark can you explain why it would be a good choice to make the following items?

## Notice & Wonder : Examine the birch tree sections and bark in the Learning Trunk

Some ideas:

- Birch bark (**wiig waas**) comes in layers. Thin layers can make containers or baskets (**makak**).

Thick layers can make canoes.

- When you take the bark off the tree it is flexible and can be bent & shaped.
- If you store birch bark for later use you will need to heat it in water or over a flame to achieve a flexible material. Why do you think that is?
- If you use a sharp bone or piece of metal you can etch designs into the birch bark or use it like paper for a message.
- Birch bark takes a long time to degrade (rot)
- You can sew pieces of birch bark together to make a larger piece (which was used to cover houses (**waakaa'igan**)).
- Because birch bark comes in layers, it is easy to make tinder to start a fire.

Why would that make it easier to burn?

# Notice & Wonder : Examine the other examples of birch bark item from in the Learning Trunk

Some other uses for Birch Bark  
Coverings for homes

Containers

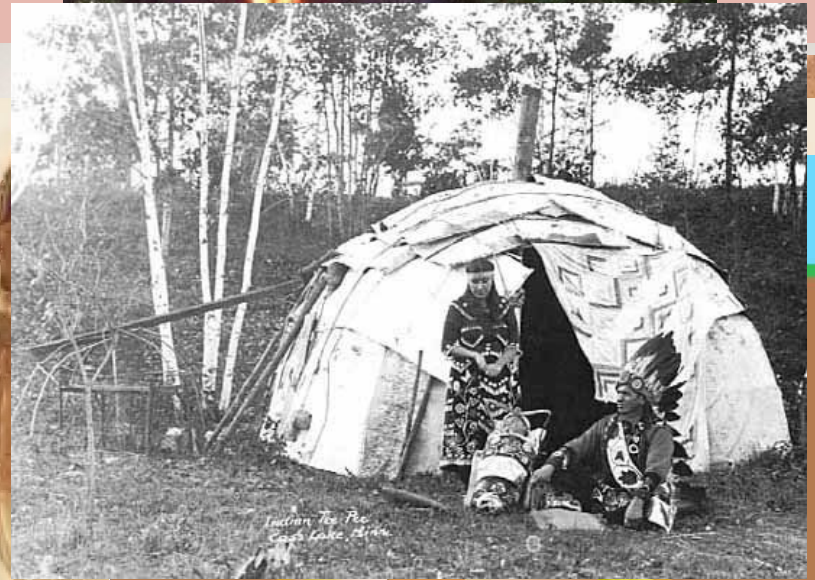
Splints

Lining for Cache to store food

Torches

Paper

Birch bark biting patterns





The Ojibwe people applied knowledge of the natural world in determining which materials had the properties that were best suited to make a lightweight durable canoe plus many other useful items to make their life easier.

Through observation, experimentation and sharing of knowledge they were able to create items

# Extended Activities

1. [Make a Birch Bark Basket](#)
2. [Make a Birch Bark Canoe](#)

# Resources

Smithsonian Article - The Use of Birch Bark by the Ojibwe  
FESTBK1981\_03.pdf (si.edu)

University of Minnesota - Intersecting Ojibwe Art Curriculum

Birchbark Baskets : Intersecting Ojibwe art curriculum (umn.edu)

The Ojibwe People's Dictionary ( University of Minnesota )

wiigwaas (ni) | The Ojibwe People's Dictionary (umn.edu)

An Ojibwa elder explains how her family built birchbark canoes in the 1930's and 40's.

<https://www.native-art-in-canada.com/birchbarkcanoes.html>

Birch bark bitings:

<https://www.youtube.com/watch?v=bFJaa9ndAts>

Birch Bark projects to do with students using “birch bark” cardstock

# Works Cited

Slide 1 - [Picture of birch tree](#)

Slide 2 - Pictures of items from ISD622 - Ojibwe/Dakota Learning Trunk - robin nelson

Slide 4 - “ A Concise Dictionary of Minnesota Ojibwe” by John D. Nichols and Earl Nyholm

Slide 5 - picture - Family with canoe and wigwam [Research Project: Life As A Native American](#)

Slide 6 - [Picture of man portaging a canoe](#)

Slide 7 - SlideShow pictures [Dugout canoe](#)    [Birch bark in layers](#)    [Birch tree fall to the ground](#)  
[Taking birch bark off a tree](#)    [Making a basket](#)    [Birch bark on water](#)    [Many birch trees](#)

Slide -8 [Picture of a family making a canoe](#)

Slide 9 - Picture of various birch bark containers - Robin Nelson

Slide #11 - Slideshow

Birch bark splints: [Birch Bark Splints](#)

Picture writing :[Canadian Aboriginal Syllabics – Atlas of Endangered Alphabets](#)

Birch bark torch: [birch bark torches](#) <https://urbansurvivalsite.com/how-to-make-a-torch-for-survival/>

Birch bark house: [The Ojibwe People's Dictionary \(umn.edu\)](#)

Birch Bark container [Ojibwe/Lakota Art and Culture | Birch bark baskets, Birch bark, Birch bark crafts \(pinterest.com\)](#)

Birch Bark bitings [Art Study - Ojibwe Birch Bark Biting - ANGELICSCALLIWAGS | Birch bark, Native american crafts, Native american decor](#)

# Works Cited

Slide #12 - Man in a canoe

[The Ojibwe | Native american artwork, Native american crafts, Native american pictures](#)

Birch Bark Basket and Canoe Extended Art Lessons inspired by Information gleaned from:  
***Indian Education Curriculum Project, Minneapolis Public Schools - 1979 (Wild Rice and Maple Sugar)*** Pictures staged by robin nelson

Research from:

***“Chippewa Customs”*** by Frances Densmore 1979 reprinted from original 1929 publication

***The Ojibwe People*** developed by The Ojibwe Curriculum committee, American Indian Studies Department, University of Minnesota and the Educational Services Division, Minnesota Historical Society, 1973.

***American Indian History, Culture and Language*** - Curriculum framework-1995  
Office of Indian Education, Minnesota Department of Education



# Works Cited

Slide 1 - picture of birch tree- <https://www.freeimages.com/photo/birch-tree-bark-1-1141573>

Slide 2 - Pictures of items from ISD622 - Ojibwe/Dakota Learning Trunk - robin nelson

Slide 4 - “ A Concise Dictionary of Minnesota Ojibwe” by John D. Nichols and Earl Nyholm  
The Ojibwe People’s Dictionary <https://ojibwe.lib.umn.edu/>

Slide 5 - picture - Family with canoe and wigwam

Research Project: Life as a Native American | Scholastic.com | Native american artifacts, Native american, Canoe (pinterest.com)

<https://www.scholastic.com/teachers/teaching-tools/book-lists/11-nonfiction-books-to-teach-about-native-american-nations.html>

Slide 6 - picture of man portaging a canoe <https://www.winslow-homer.com/The-Portage.html>

Slide 7 - SlideShow pictures Dug - out canoe

<https://i.pinimg.com/originals/6b/fb/bc/6bfbbc988ee56810c438d8732eaa2c54.jpg>

Birch bark in layers

<https://volumeone.org/news/2019/07/01/254513-why-does-birch-tree-bark-peel-off>

\*Birch tree fall to the ground

<https://www.dreamstime.com/stock-photo-birch-trees-storm-small-forest-which-broken-then-there-were-cut-down-stacked-like-wood-harvesting-photos-taken-image86059388>

Taking birch bark off a tree

<http://elfshotgallery.blogspot.com/2014/08/harvesting-birch-bark.html>

# Works Cited

Continued:

Many birch trees

<https://www.flickr.com/photos/saaby/23358350/>

Slide -8 Picture of a family making a canoe

<https://www.twincities.com/2007/05/20/a-window-into-ojibwe-life/>

Slide 9 - picture of various birch bark containers - Robin Nelson

Slide #11 - Slideshow

Cache Typical Bell-Shaped Cache Pit, Huff | Ancient village, Garden pictures, Historical society (pinterest.com)

Birch bark splint Bing images

Picture writing

Canadian Aboriginal Syllabics – Atlas of Endangered Alphabets

Birch bark torch birch bark torches - Bing images <https://urbansurvivalsite.com/how-to-make-a-torch-for-survival/>

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Birch Bark container Ojibwe/Lakota Art and Culture | Birch bark baskets, Birch bark, Birch bark crafts (pinterest.com)

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Birch Bark bitings Art Study - Ojibwe Birch Bark Biting - ANGELICSCALLIWAGS | Birch bark, Native american crafts, Native american decor (pinterest.com)

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American Indian History, Culture and Language - Curriculum framework-1995

Office of Indian Education, Minnesota Department of Education

# 2nd Grade Science Birch Bark Lesson

## Minnesota State Standards - Physical Science

P.4.2.2.1 Obtain information and communicate how Minnesota American Indian Tribes and communities

and other cultures apply knowledge of the natural world in determining which materials have the properties that are best suited for an intended purpose.\* (P: 8, CC: 2, CI: PS1, ETS1)

Examples of cultures may include those within the local context of the learning community and within the context of Minnesota. **Emphasis of the practice is on obtaining, interpreting, and communicating information related to how various cultures have built materials suited for intended purposes according to their properties.**

Examples of materials may include instruments (Cedar for knockers and Black Spruce for poles) for ricing, birch bark for baskets or other containers for carrying water, and sinew for connecting parts of tools.



# Extended Activity: ONE

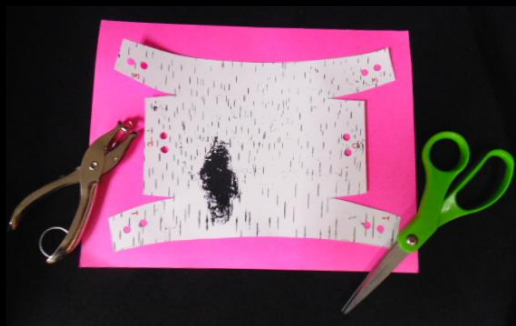
## Make a Birch Bark Basket

(slideshow Instructions - see speaker notes for adaptations)

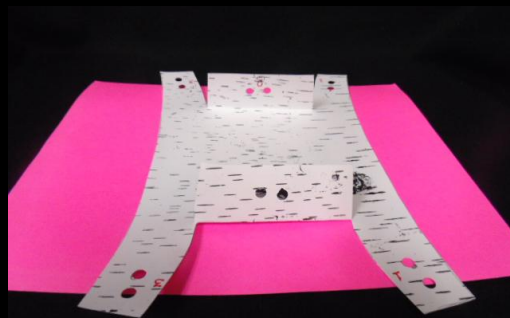


[Pattern For Project](#)

[Written Instructions/supply list](#)



**1. Cut out basket pattern and punch holes where indicated.**



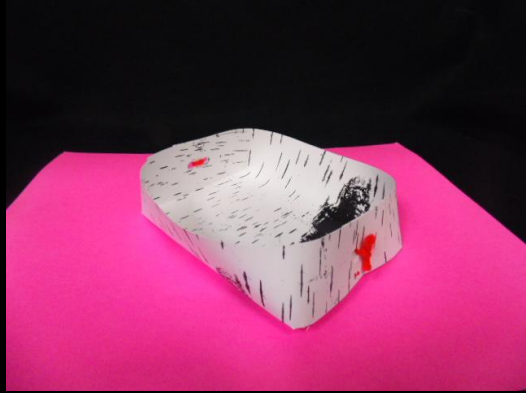
**2. Fold up #2 flap and crease.**



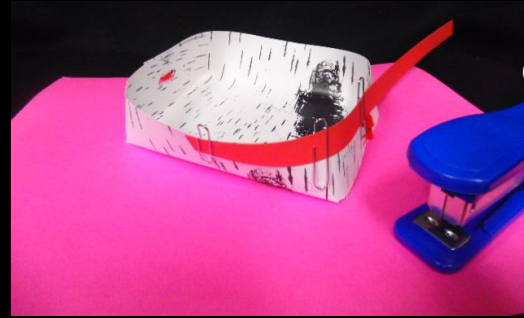
**3. Bring flaps #1 & #3 around the outside of flap #2 and match up holes. Hold in place with paper clips.**



**4. Lace yarn through matching flap holes from outside to inside of basket. Tie Knot.**



**5. Repeat steps 1-4 to complete opposite end of basket.**



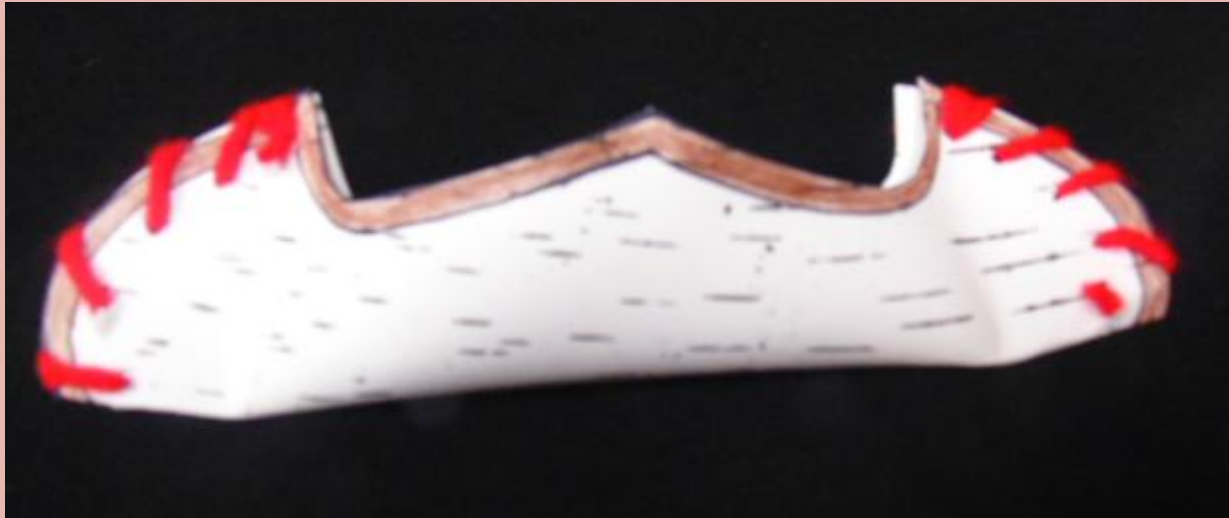
**6. Staple the colored  $\frac{3}{8}$ " x 18" cardstock around the top of the basket using paper clips to hold in place.**



**7. Students can use their finished basket as gifts or to hold odds & ends.**



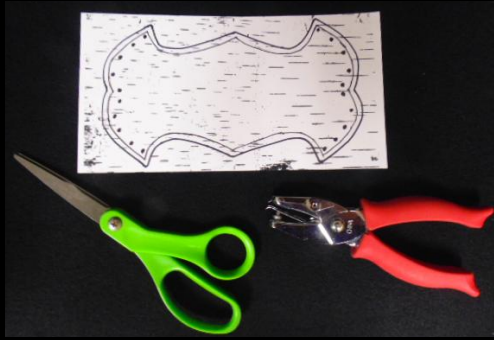
**EXTENDED ACTIVITY: TWO**  
**Make a Birch Bark Canoe**  
**(slideshow instructions)**



[Pattern For Project](#)

[Written Instructions/supply list](#)





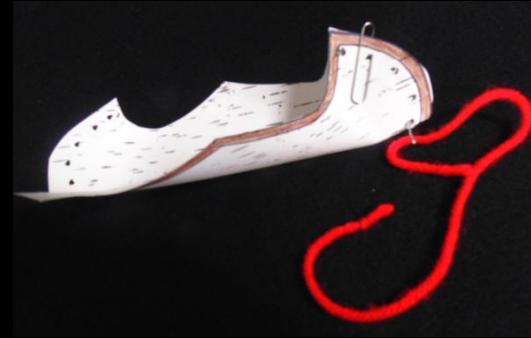
**1. Cut out canoe and punch holes where indicated.**



**2. Color in the 3/8th inch space outlined around the canoe**



**3. Crease just the bow ends of the canoe (Do Not crease the middle)**



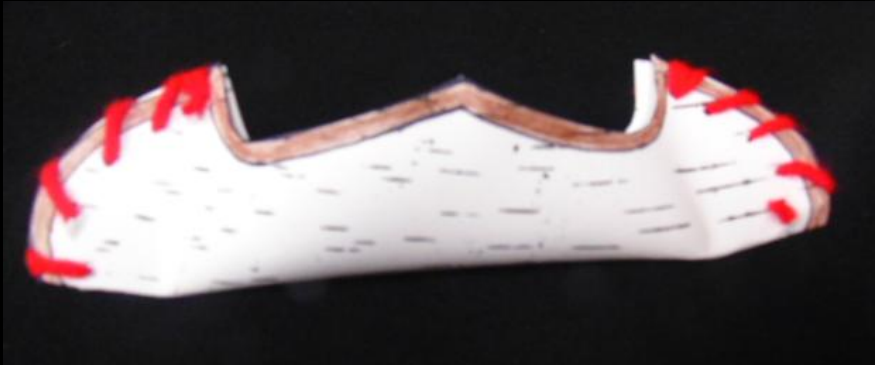
**4. Match up the holes of bow ends and secure with a paperclip. Thread yarn into a hairpin" needle" and knot one end. Begin Sewing in the bottom hole of the bow using an overcast stitch.**



5. On the last stitch (on the top of the bow of the canoe) you will go through the hole 2 times.



6. Make a knot and trim yarn. Repeat steps #4 - #6 to complete the other side of your canoe.



7. Do you think your canoe can float in water?

