

**Friday, December 4th**  
**Lesson 2 - Properties and Uses of Materials**

Read "The Three Little Pigs"

- What's the purpose of the house?
- Which house accomplishes that purpose?
- What materials are used to make the house "Sturdier?"

**Activity - Properties and Uses of Materials**

Materials:

Flat straws

Bendy straw

popsicle sticks

toothpicks

pipe cleaners

Task 1 -

Give each student some of each material

- Have student try to bend each material.
  - Students should rank them from most difficult to easiest to bend

Task 2 -

Replenish materials so that each student has one

- Have students try to tear each material
  - Students should rank from most to easiest to tear

Task 3 -

From their list, ask student to find one way to make the two most "bendable" materials less bendable, and the 2 most easily torn, tear-resistant.

**CLASS DISCUSSION —> REFLECTION (10 min)**

Ask:

*What materials were the easiest to bend? Most difficult to bend? to tear?*

*Build a class chart of ranking - Students should be encouraged to think outside the box and feel safe that they can change their ranking based on proposed evidence*

*Ask students to share how they made materials less bendable? less easily torn?*

*Are their examples in real life where materials are used in ways that will make them stronger?*

**JOURNAL**

If you had to build a model of a wagon, what materials would you use for the handle used to pull the wagon? Explain your choice.

# Properties and Uses of Materials

## Task 1

Try to **Bend** each material

Make a list of the materials in order from most difficult to easiest to **Bend**

.....

## Task 2

Try to **Rip** each material

Make a list of the materials from most difficult to easiest to **Rip**

.....

## Task 3

Take the two most easily bent items and find one way to make them less easily bent.

1. I can make the \_\_\_\_\_ less easily bent by \_\_\_\_\_.

2. I can make the \_\_\_\_\_ less easily bent by \_\_\_\_\_.

Take the two most easily ripped materials and find one way to make them rip-resistant.

1. I can make the \_\_\_\_\_ less easily ripped by \_\_\_\_\_.

2. I can make the \_\_\_\_\_ less easily ripped by \_\_\_\_\_.

## Activity - Joining Materials

Materials:

Popsicle sticks

Straws

toothpicks

pipe cleaners

tape

paperclips

string

play dough

elastics

### Task 1

Have students work in groups to explore how to join 2 straws at a single point.

Provide students with a variety of materials to test their usefulness in joining straws. Students should words or pictures to record their findings

Have students going 3, 4, 5 straws at a single point

### Task 2

Have students at different groups try joining, popsicle sticks and toothpicks

## CLASS DISCUSSION → REFLECTION (10 min)

Have students share how they were able to join straws. Make a class chart

Joining	Possible Fasteners	Advantages and/or Disadvantages
2 straws		
3 straws		
4 straws		
5 straws		

There may be several possible fasteners for each kind of join. Have students discuss the advantages and disadvantages of each joining method and add to the chart

Ask: What fastener do you think works best for joining each material used?

What is the best fastener?

What materials might be good for joining something strong? or tall? or for a bridge?

Have students think about their first structure and fill in the fastener part of the “My Next Structure” chart. In particular, students are to think about the fasteners they could use, why they chose them and how that would affect the look of their structure.

## JOURNAL

If Michael wanted to build a windmill model, what materials should he use and how should he join the materials? Explain your choices

# My Next Structure

Task: Build a structure that is \_\_\_\_\_

Materials to use and why:	My Group:
Diagram(s) of structure	Fasteners to use and why:

**JOURNAL**

If you had to build a model of a wagon, what materials would you use for the handle used to pull the wagon? Explain your choice

If Michael wanted to build a windmill model, what materials should he use and how should he join the materials? Explain your choices