



# Let's Learn About PAPER & NATURAL MATERIALS

## Quick View

### How Do We Combine Paper and Natural Materials to Make Useful Everyday Items?

By taking a fresh look at two previously explored materials, Paper & Natural Materials, we will compare and contrast these two materials and find out how they are often combined.

### Materials

Sweaters, scarves, mittens made with wool or cotton yarn, coats, pillows, cloth toys made of cotton or other natural fiber, books, newspaper, paper bags, flower seeds, construction paper, leaves, glue sticks, pine cones, cotton balls, crayons, construction paper.

**A more detailed list can be found on Page 2.**

### Standards

**NCECDL, ELOF:** Goal IT-ALT 3, 4, 5, 6, 7, 8, 9; Goal P-ATL 6, 7, 8, 9, 10, 11, 12, 13; Goal P-LC 1, 2, 3, 4, 5, 6, 7; Goal P-LIT 4, 5; Goal IT-C 1, 2, 3, 5, 6, 7, 9, 10, 12, Goal P-MATH 7, 8, 10; Goal P-SCI 1, 2, 4, 5, 6; Goal IT-PMP 1, 2, 3, 4, 5, 6, 7, 8; Goal P-PMP 2, 3; **MI Standards** SS 1, 3.







### Model i Innovation Learning Framework

Throughout this lesson, there will be opportunities to bring in Model i's Habits of an Innovator and Actions of Innovation.

**More information on Model i can be found at:**

[thf.org/education/teaching-innovation/modeli](http://thf.org/education/teaching-innovation/modeli)

### Lesson Overview

STEAM			ELA/LIT	SS/HST	
Explore	Discover	Create	Inspiring Stories	Artifact of the Day	Review & Extend
<p>Ask what characteristics students remember about paper and natural materials.</p> <p>Students should talk about what is made from each material.</p> <p>Show images from The Henry Ford collections.</p> <p>Why might these materials be combined?</p>  <p>Stay Curious, Uncover</p>	<p>Explore the classroom and playground (if possible) for items made of paper and natural materials.</p> <p>Ask students to think of other items made from paper and natural materials.</p>  <p>Stay Curious, Collaborate</p>	<p>Students can use glue sticks to make shapes on construction paper and sprinkle seeds on the glue to take home and plant.</p> <p>Students can make pine cone baby owls with paper feet, eyes and ears.</p> <p>Students can use leaves and other natural materials to create their own hedgehogs, owls or turkeys.</p>  <p>Design, Learn from Failure</p>	<p>Read stories related to the learning: <i>Nature's Day: Discover the World of Wonder on Your Doorstep</i> by Kay Maguire and <i>What Do You Do with a Chance?</i> by Kobi Yamada.</p>  <p>Collaborate, Be Empathetic</p>	<p>Show students pictures of Thomas Edison's bamboo and cardboard filament lamp.</p> <p>Show the Story Bots Great Inventors clip.</p> <p>Talk about the numerous failures of Edison and his men before finding the filaments that worked.</p>  <p>Stay Curious, Learn from Failure</p>	<p>Ask students specific and open-ended questions.</p> <p>Family Connection worksheet to send home.</p> <p>Coloring sheet to send home or work on in class.</p>  <p>Stay Curious, Collaborate</p>



# Let's Learn About **PAPER & NATURAL MATERIALS**



## Materials

### Explore

#### Activity — Touch Exploration

- Wool and cotton sweaters, scarves, mittens, toys
- Teachers should provide as many examples of objects that are made of paper and natural materials as possible for touch exploration.

### Create

#### Project Two — Pine Cone Baby Owls

- Pine cones, 1 per student
- Cotton balls
- Construction paper, white and black, to make eyes (googly eyes are an option)
- Construction paper for feet
- Glue

### Create

#### Project One — Seeds to Plant

- Glue sticks
- Seeds
- Construction paper

### Create

#### Project Three — Natural Materials Animals

- Animal figures: hedgehog, turkey, owl
- Leaves of various sizes and shapes
- Construction paper, white and black, for eyes
- Construction paper, various colors, cut in circles for owl and turkey bodies (optional)
- Crayons, colored pencils or markers
- Glue



# Let's Learn About **PAPER & NATURAL MATERIALS**



## Lesson Guide

### Explore



*Stay Curious, Uncover*  
**Compare, Contrast, Combine** ..... **Page 4**  
*Activity: Touch Exploration* ..... *Page 4*  
*Links & Photos* ..... *Pages 5-15*

### Inspiring Stories



*Collaborate, Be Empathetic*  
**Read Stories to Inspire Your Students** ..... **Page 26**

### Discover



*Stay Curious, Collaborate*  
*Activity:*  
*What Do We Have Made of Paper and Natural Materials?* ..... *Page 16*

### Review & Extend



*Stay Curious, Collaborate*  
**Ask Students Specific and Open-Ended Questions** ..... **Page 27**  
*Family Connection* ..... *Page 28*  
*Coloring Sheet* ..... *Page 29*

### Artifact of the Day



*Stay Curious, Learn from Failure*  
**Edison's Carbonized Cotton Thread Filament Light Bulb** ..... **Page 17**  
*Links & Photos* ..... *Pages 18-19*

### Create



*Design, Learn from Failure*  
**What Can We Make with Paper and Natural Materials?**  
*Project 1: Seeds to Plant* ..... *Page 20*  
*Project 2: Pine Cone Baby Owls* ..... *Page 21*  
*Project 3: Natural Materials Animals* ..... *Page 22-25*



# Let's Learn About **PAPER & NATURAL MATERIALS**



## Explore

### Compare, Contrast, Combine

Teachers can ask students, "What do we remember about paper and natural materials?" and elicit responses such as paper comes from trees; things that grow, such as cotton, grasses, leaves, etc., are natural materials, so are stones.

Teachers can show students images and items related to what is made of each: from the **Pottery Shop**, a clay jug and pitcher, where paper patterns are used to mark the pottery for painting; from the **Carding Shop**, where wool from the sheep is combed and separated so it can be woven in to yarn; from the **Weaving Shop**, where the jacquard loom uses a system similar to punch cards to create beautiful patterns in weaving; from the **Print Shop** and presses where paper with linen and cotton is pressed into embossed (raised) designs and the early newspaper press could make many more copies in a much shorter time.

Teachers can also show the **advertising posters** where linen is combined with paper to make sturdier, longer lasting advertisements.

Teachers can show students a baseball cap explaining that the bill is often made of cardboard covered with fabric and the picture of a **woman's hat** made from paper and natural materials.

Teachers should ask students why they think paper and natural materials might be combined and what kind of products might result.

Links and photos for this section are on Pages 5-15.

### Activity

#### Touch Exploration

Teacher should have students talk about what things are made with paper and what are made with natural materials.

Ask specific questions to help students remember and identify why some items are made of paper but others are made from natural materials.

Students may also include items they discovered at home made from these materials.

Have students touch wool and cotton sweaters, scarves, mittens, toys, etc.; describe what they see and feel; and think about why these items are made from natural materials but not paper.

### Model i Innovation Learning Framework

#### Stay Curious, Uncover

- Ask questions like what, why, how.
- What do you see (characteristics, properties)? What problems does this material help us solve?





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Explore

## **4-Gallon Stoneware Jug, 1850-1875**

[thf.org/collections-and-research/digital-collections/artifact/218966](https://thf.org/collections-and-research/digital-collections/artifact/218966)





# Let's Learn About **PAPER & NATURAL MATERIALS**



Explore

## Wedgewood Pitcher, circa 1815

[thf.org/collections-and-research/digital-collections/artifact/117331](https://thf.org/collections-and-research/digital-collections/artifact/117331)







# Let's Learn About **PAPER & NATURAL MATERIALS**



Explore

## Carding Machine, 1850-1890

[thf.org/collections-and-research/digital-collections/artifact/245864#slide=gs-226468](https://thf.org/collections-and-research/digital-collections/artifact/245864#slide=gs-226468)





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Explore

## **Jacquard Loom, Modeled After 1804 Design**

[thf.org/collections-and-research/digital-collections/artifact/354319](https://thf.org/collections-and-research/digital-collections/artifact/354319)

Note punch card system – same principle as early computer programming.







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Explore

**Carole Ashley at the Jacquard Loom, Plymouth Carding Mill  
(now Gunsolly Carding Mill), Greenfield Village, 1977**

<https://www.thehenryford.org/collections-and-research/digital-collections/artifact/408542>





# Let's Learn About **PAPER & NATURAL MATERIALS**

Explore

## Jacquard Coverlet, 1848

[thf.org/collections-and-research/digital-collections/artifact/370875#slide=gs-249474](https://thf.org/collections-and-research/digital-collections/artifact/370875#slide=gs-249474)







# Let's Learn About **PAPER & NATURAL MATERIALS**



Explore

## **Columbian Press, 1857**

[thf.org/collections-and-research/digital-collections/artifact/178957](https://thf.org/collections-and-research/digital-collections/artifact/178957)





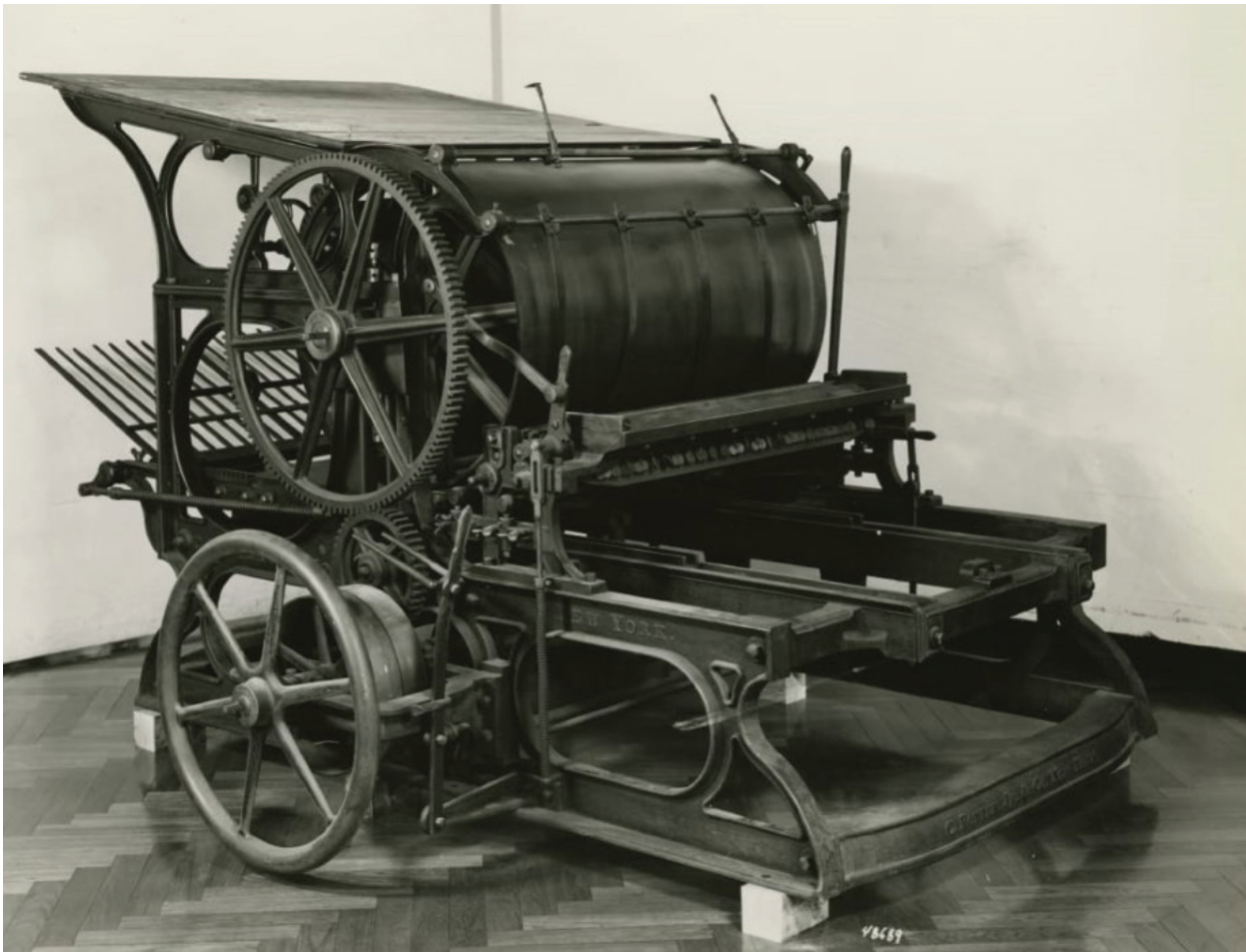
# Let's Learn About **PAPER & NATURAL MATERIALS**



Explore

## **Potter Cylinder Press, 1879-1893, Newspapers in Volume**

[thf.org/collections-and-research/digital-collections/artifact/140002](https://thf.org/collections-and-research/digital-collections/artifact/140002)







# Let's Learn About **PAPER & NATURAL MATERIALS**



Explore

## Advertising Poster, Virginia Sweet Brand Self-Raising Pancake Flour, 1912-1917

[thf.org/collections-and-research/digital-collections/artifact/251513](http://thf.org/collections-and-research/digital-collections/artifact/251513)





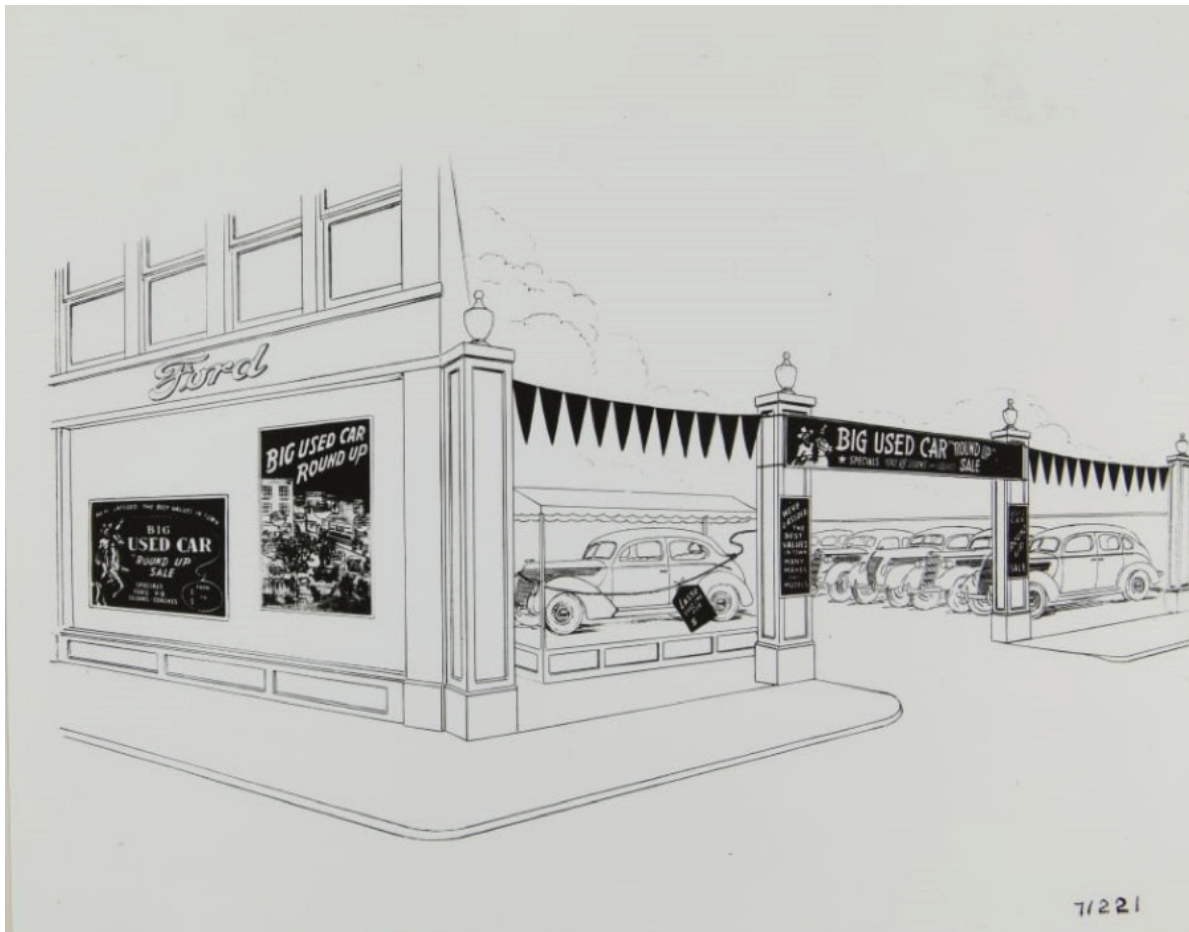
# Let's Learn About **PAPER & NATURAL MATERIALS**



Explore

## Drawing of Used Car Lot Advertising "Big Used Car Round Up," 1939

[thf.org/collections-and-research/digital-collections/artifact/440343](https://thf.org/collections-and-research/digital-collections/artifact/440343)





# Let's Learn About **PAPER & NATURAL MATERIALS**



Explore

## **Bonnet, circa 1870, Straw, Cotton, Paper**

[thf.org/collections-and-research/digital-collections/artifact/16783#slide=gs-177784](https://thf.org/collections-and-research/digital-collections/artifact/16783#slide=gs-177784)





# Let's Learn About **PAPER & NATURAL MATERIALS**



## Discover

### Activity

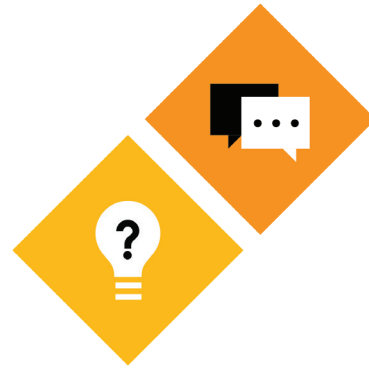
#### What Do We Have Made of Paper and Natural Materials?

Students can explore their classroom and playground (weather permitting) to find items made with paper and natural materials, such as pictures, wood picture frames (natural materials and cardboard back), greeting cards, toys (many items such as play kitchens have wooden structure with paper/sticker covering), books with cloth incorporated in covers or cloth tape on spines, etc.

### Model i Innovation Learning Framework

#### Stay Curious, Collaborate

- Ask questions like what, why, how.
- Talk about helping, working together.







# Let's Learn About **PAPER & NATURAL MATERIALS**



## Artifact of the Day

### **What Is Edison's Carbonized Cotton Thread Filament Light Bulb?**

Thomas Edison and his team of workers experimented with many materials to create the first practical light bulb, including bamboo and cardboard. On October 21, 1879, Edison's bulb with a filament (the tiny wire that glows inside the bulb) made of carbonized cotton sewing thread burned brightly for over 40 hours and was declared a success. The use of a natural material led to the development of this important scientific discovery that we use in our homes and businesses every day. How cool is that?

Teachers can also show the following clip of Story Bots Great Inventors: Thomas Edison

[youtube.com/watch?v=b1KwZTtzlY](https://youtube.com/watch?v=b1KwZTtzlY)

Links and photos for this section are on Pages 18-19.

### **Model i Innovation Learning Framework**

#### **Stay Curious, Learn from Failure**

- Ask questions like what, why, how.
- Talk about "trying again," what's another way to...





# Let's Learn About **PAPER & NATURAL MATERIALS**



Artifact of the Day — Links

## **Edison Lamp, 1879, Paper Horseshoe Filament**

[thf.org/collections-and-research/digital-collections/artifact/199162](https://thf.org/collections-and-research/digital-collections/artifact/199162)





# Let's Learn About **PAPER & NATURAL MATERIALS**



Artifact of the Day — Links

## **Edison Bamboo Filament Lamp, 1880**

[thf.org/collections-and-research/digital-collections/artifact/10019](https://thf.org/collections-and-research/digital-collections/artifact/10019)





# Let's Learn About **PAPER & NATURAL MATERIALS**



**Create — What Can We Make with Paper and Natural Materials?**

## **Project 1: Seeds to Plant**

Students can use glue sticks to make shapes on construction paper and sprinkle seeds on the glue to take home and plant.

### **Materials**

- Glue sticks
- Seeds
- Construction paper

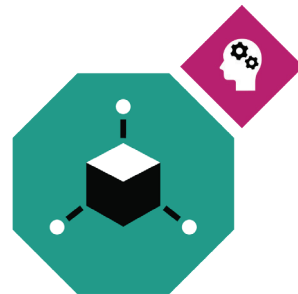
### **Instructions**

1. Give students glue sticks to draw on construction paper.
2. Sprinkle seeds over the glue areas.
3. Take home, cut paper into sections and plant in soil. Construction paper will break down.

## **Model i Innovation Learning Framework**

### **Design, Learn from Failure**

- Make, build and create.
- Talk about “trying again,” what’s another way to...







# Let's Learn About **PAPER & NATURAL MATERIALS**



**Create — What Can We Make with Paper and Natural Materials?**

## **Project 2: Pine Cone Baby Owls**

Students can make pine cone baby owls with paper feet, eyes and ears.

### **Materials**

- Pine cones, 1 per student
- Cotton balls
- Construction paper, white and black, to make eyes (googly eyes are an option)
- Construction paper for feet
- Glue

### **Instructions**

1. Give each student a pine cone and 2-3 cotton balls.
2. Pull cotton ball out to thin and create more of a string of cotton.
3. Begin wrapping pulled cotton around pine cone, tucking in between rows of scales. Repeat with each cotton ball until cone is completely covered.
4. Cut white circles and small black circles for eyes.
5. Glue small black circles onto white circles and glue to pine cone. (Googly eyes may be substituted for the construction paper ones.)
6. Cut paper triangles for feet. Glue to bottom of pine cones.

## **Model i Innovation Learning Framework**

### **Design, Learn from Failure**

- Make, build and create.
- Talk about "trying again," what's another way to...





# Let's Learn About **PAPER & NATURAL MATERIALS**

**Create — What Can We Make with Paper and Natural Materials?**

## **Project 3: Natural Materials Animals**

Students can use leaves and other natural materials to create their own hedgehog, owl or turkey.

### **Materials**

- Animal figures: hedgehog, turkey, owl
- Leaves of various sizes and shapes
- Construction paper, white and black, for eyes
- Optional: Construction paper, various colors, cut in circles for owl and turkey bodies
- Crayons, colored pencils, or markers
- Glue

### **Instructions**

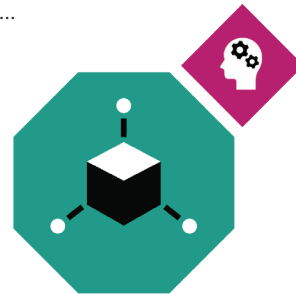
1. Choose which figure to use or give students a choice of figures.
2. If using pre-drawn figures, allow students to color figures with crayons, colored pencils or markers.
3. Cut circles of white paper and small circles of black for turkey or owl eyes.
4. Give students a variety of colors and sizes of leaves to cover body of hedgehog or make tail of turkey or wings of owl.
5. Assist students in gluing leaves in place on their figure.

**Figure outlines are on Pages 23-25.**

## **Model i Innovation Learning Framework**

### **Design, Learn from Failure**

- Make, build and create.
- Talk about “trying again,” what’s another way to...

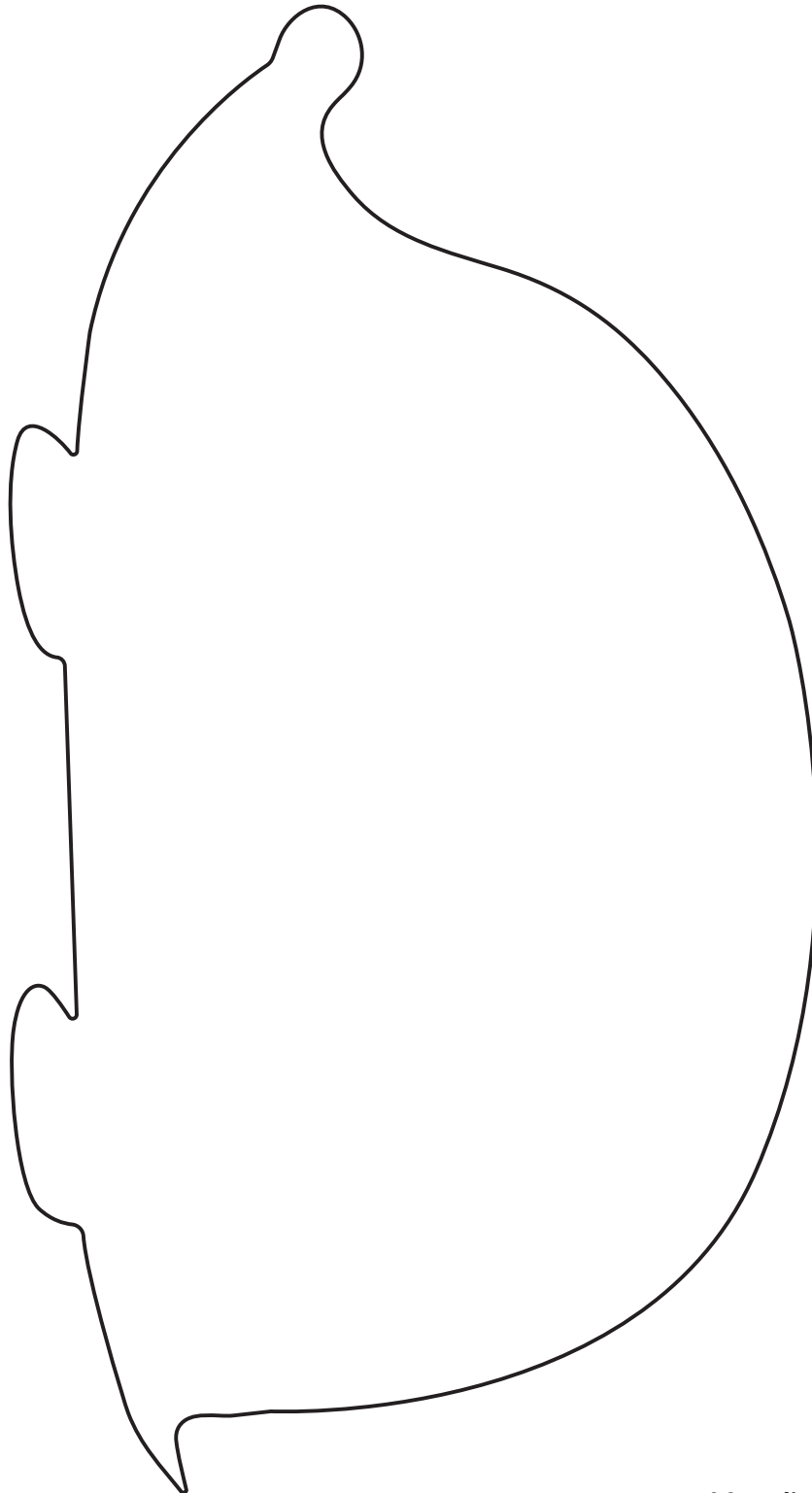




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## Hedgehog Outline

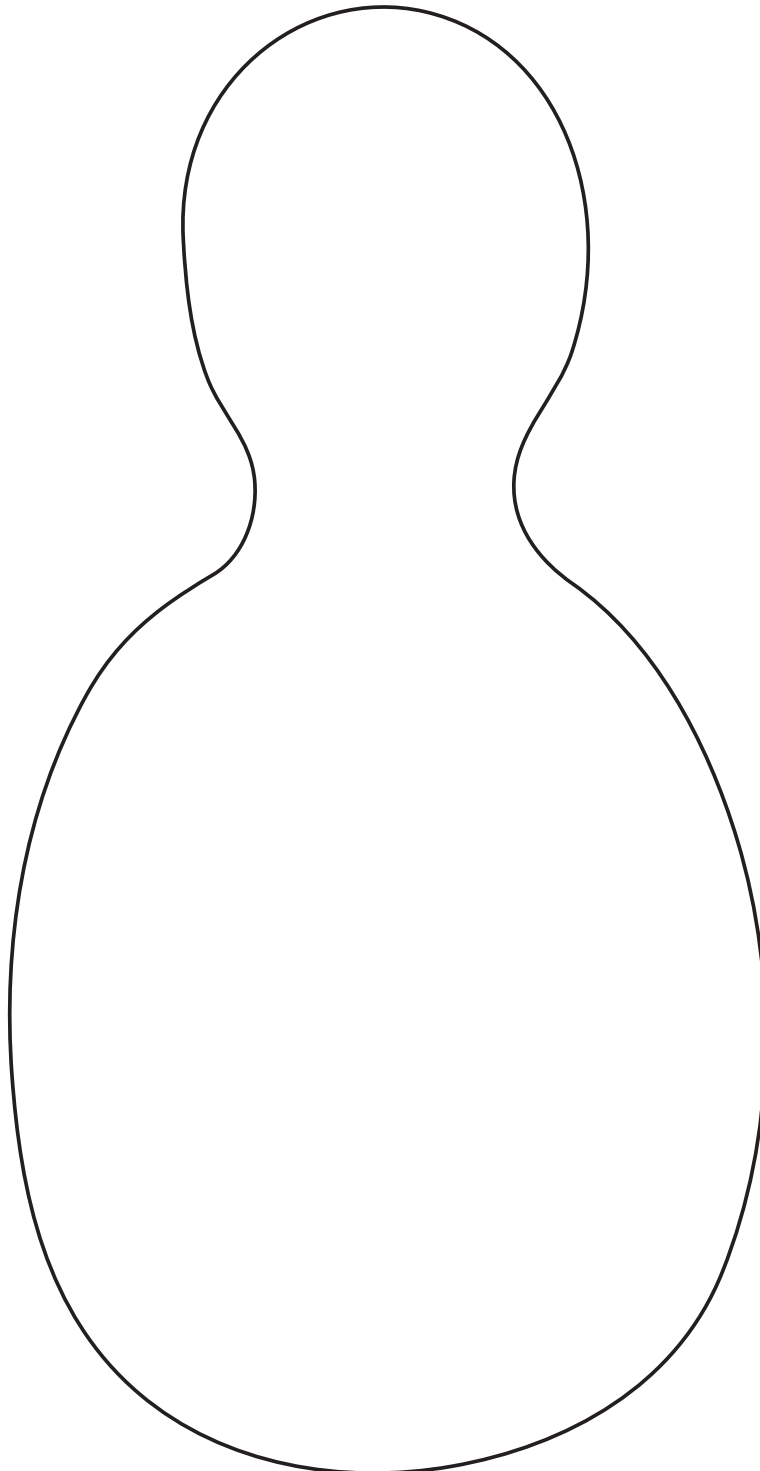




# Let's Learn About **PAPER & NATURAL MATERIALS**



Turkey Outline



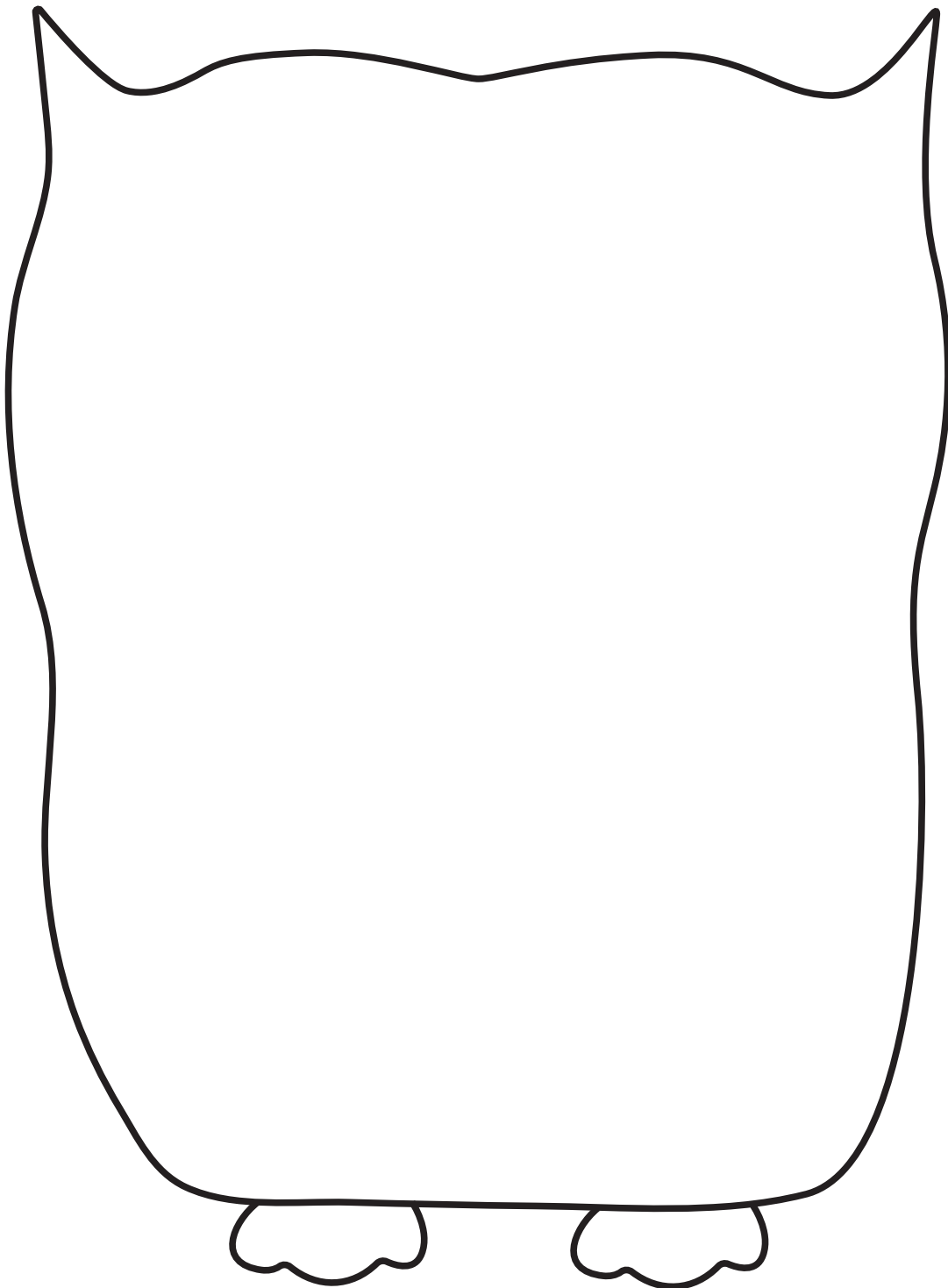




# Let's Learn About **PAPER & NATURAL MATERIALS**



## Owl Outline

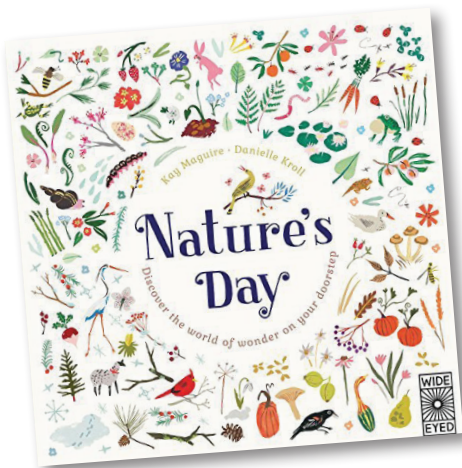




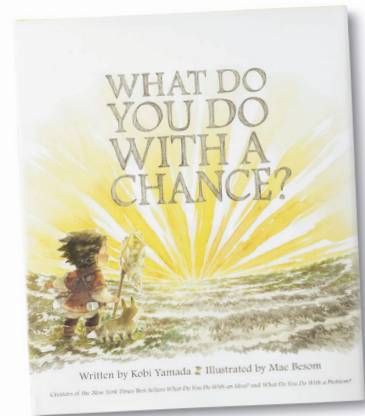
# Let's Learn About **PAPER & NATURAL MATERIALS**

## Inspiring Stories

### Read Stories to Inspire Your Students



***Nature's Day: Discover the World  
of Wonder on Your Doorstep***  
by Kay Maquire

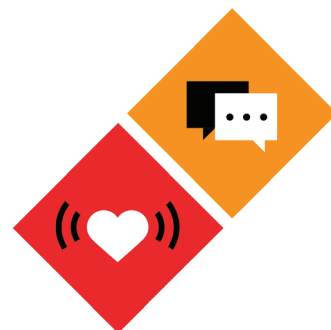


***What Do You Do with a Chance?***  
by Kobi Yamada

### Model i Innovation Learning Framework

#### Collaborate, Be Empathetic

- Talk about helping, working together.
- How did the characters in the stories feel?  
How might the stories make others feel?





# Let's Learn About **PAPER & NATURAL MATERIALS**



## Review & Extend

### Ask Students Specific and Open-Ended Questions

- How do we know if something is a natural material?
- What other kinds of items do you think can be made with paper and natural materials?
- What would you like to make using paper and natural materials?
- What happened in the story today?

### Family Connection

Send the worksheet on Page 28 home with students to be completed at the end of the lesson.

### Coloring Sheet

Have students color the picture on Page 29 as a part of the lesson, or send it home to be colored.

### Model i Innovation Learning Framework

#### Stay Curious, Collaborate

- Ask questions like what, why, how.
- Talk about helping, working together.





# Let's Learn About **PAPER & NATURAL MATERIALS**



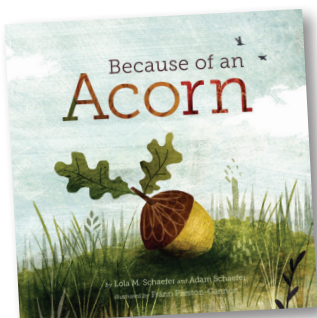
Review & Extend — Family Connection

## Take the Learning Home

We are learning about **paper and natural materials** as they are combined to make many items we use every day. Please take your student on an "**I Spy**" **adventure** through your home and neighborhood to see what paper and natural materials items you can find. What are some of these things? Have them draw what they find.



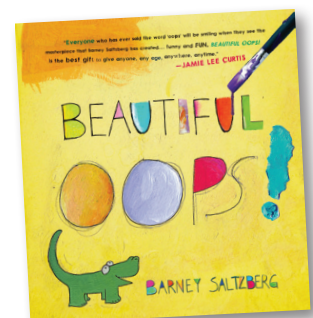
These are some of the stories related to our learning. You might enjoy reading them with your student.



*Because of an Acorn*  
by Lola M. Schaefer  
and Adam Schaefer



*I Will Try (Mindful Mantras Book 5)*  
by Laurie Wright



*Beautiful Oops!*  
by Barney Saltzberg





# Let's Learn About **PAPER & NATURAL MATERIALS**



## Coloring Sheet

**Edison Bamboo Filament Lamp, 1880**

