
Kindergarten

Cluster 3: Paper

Overview

By identifying, describing, and manipulating different kinds of paper and paper products found in the classroom, students are introduced to the concept of characteristics of materials. Hands-on investigations allow students to determine how well different kinds of paper can be cut, torn, and folded, and how these characteristics help to determine their uses. This study of paper culminates in students' developing their design-process skills by constructing a paper product for a particular use.

PRESCRIBED LEARNING OUTCOMES	SUGGESTIONS FOR INSTRUCTION
<p><i>Students will...</i></p> <p>K-3-01 Use appropriate vocabulary related to their investigations of paper. Include: characteristic, thick, thin, hard, soft, smooth, rough, absorbent, pliable. GLO: C6, D3</p>	<p>➤ Introduce, explain, use, and reinforce vocabulary throughout this cluster.</p> <p>➤ Object Wall with Words Cover one bulletin board with paper. Draw and label columns with the words thick, thin, hard, soft, smooth, rough, absorbent, and pliable. Glue one sample of paper under each heading. During the study of this cluster give students opportunities to add other types of paper under the headings.</p>
<p>K-3-02 Identify kinds of paper that can be found in the classroom. <i>Examples: drawing paper, paper towels, paper plates, books, newspaper, cardboard, tissue paper...</i> GLO: B1</p> <p>K-3-03 Recognize that paper is most often made from trees. GLO: D3</p>	<p>➤ Classroom Conversation — What Is Paper? Hold up several different objects made of paper, such as a cardboard box, toilet paper roll, construction paper kite, or tissue paper flower. Ask students to identify each object, and encourage questions about the objects. Have students explain how all the objects are the same.</p> <p>➤ Paper Scavenger Hunt Put many different paper objects around the room, e.g., toilet paper rolls in the art bin, paper plates, paper cups, cardboard box, tissue butterflies, paper fans, etc. Make sure there is at least one object for each child in the class. Have each student find one object in the room that is made of paper and bring it back to the group. Use the following questions to guide the students' discussion about the paper objects they found:</p> <ul style="list-style-type: none"> • What does the paper object feel like? • What colour is the paper object? • What is the object used for? • How are all of the paper objects the same? Different? • Why do people use paper for so many things?
<p>K-0-1a. Ask questions that demonstrate a curiosity about living things, objects, and events in the immediate environment. (ELA 1.2.4, 3.1.2, 3.1.3) GLO: A1, C2, C5</p> <p>K-0-2b. Compare gathered ideas and information to personal knowledge. (ELA 3.2.3, 3.3.3; Math SP-IV.1.0) GLO: C6, C8</p> <p>K-0-5a. Observe using one or a combination of senses. GLO: C2</p>	<p>➤ How Is It Made? Ask students to share what they know about how paper is made. Show a video, use a CD-ROM, or read a book to describe the process of making paper from trees. Help students make links with their learning about trees from Cluster 1. Ask students to share what they learned about making paper.</p>

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Note: It is not expected that students at the Kindergarten level read the vocabulary words without support.

Words should be presented along with illustrations that demonstrate meaning and cue students into using the words orally.

Example:

Thick  Thin 

Science Journal Entry: Paper

Have students record in their science journals what they learned about making paper by asking, “How is paper made?” Have students use pictures and words to show what they have learned.

Students in Grade 3 may be making paper as part of Cluster 3: Growth and Changes in Plants (3-1-17). This would be a good opportunity for the Grade 3 students to share with the Kindergarten students what they did.

Students will continue to describe and compare the paper samples they are using throughout the cluster, improving their ability to observe and describe what they see.

PRESCRIBED LEARNING OUTCOMES	SUGGESTIONS FOR INSTRUCTION
<p><i>Students will...</i></p>	
<p>K-3-04 Observe and compare characteristics of different kinds of paper.</p> <p><i>Examples: compare colour, thickness, stiffness, texture...</i></p> <p>GLO: C2, D3</p>	<p>➤ Sort and Classify</p> <p>Have students work in pairs to sort and classify a variety of paper samples using their own criteria. Have students explain the reasons for their classification.</p>
<p>K-0-4d. Respond to the ideas and actions of others. (ELA 1.1.2) GLO: C5, C7</p> <p>K-0-4e. Participate in cooperative group learning experiences. (ELA 5.2.1) GLO: C7</p> <p>K-0-6c. Place materials and objects in a sequence or in groups using a single, self-determined attribute. (Math PR-1.1.0) GLO: C2, C3, C5</p>	
<p>K-3-05 Compare characteristics of different kinds of paper that make them easy or difficult to cut, tear, or fold.</p> <p><i>Examples: cardboard is thicker than newsprint and harder to fold...</i></p> <p>GLO: D3, E1</p>	<p>➤ Paper Sculpture Centre</p> <p>Set up a centre with a variety of paper scraps, glue, construction paper, and heavy cardboard (for the base). Provide samples of different ways of folding, crumpling, cutting, and curling paper to make a three-dimensional collage or paper sculpture. Include books on different kinds of paper folding and paper sculpture at the centre. Instructions to the students will direct them to cover their entire base with a variety of paper pieces, in a variety of forms (crumpled, folded, etc.) Types of paper could include tissue paper, cardboard, wax paper, paper towel, manila tag, construction paper, corrugated cardboard, newsprint, etc. Each day, have some students share and describe their sculptures to the class. Use the following questions to help guide the sharing:</p> <ul style="list-style-type: none"> • What kinds of paper are on your sculpture? • Which paper was the roughest? Smoothest? • How many different things were you able to do with your paper? • Which paper was the most difficult to cut? Tear? Why? • Which paper was the most difficult to fold? Why?
<p>K-0-4a. Manipulate materials purposefully. GLO: C1, C2</p> <p>K-0-4g. Follow given safety procedures and rules. (ELA 2.1.2) GLO: C1</p> <p>K-0-5a. Observe using one or a combination of senses. GLO: C2</p> <p>K-0-8a. Recognize that learning can come from careful observations and investigations. (ELA 3.3.4) GLO: A1, A2, C2</p> <p>K-0-9a. Be open-minded while exploring. GLO: C5</p>	
	<p style="text-align: right;">(continued)</p>

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Empty box for teacher notes.

Interview: Collage and Folding Paper

The same paper samples used in the Paper Sculpture Centre should be used for the interviews.

1. Have the student sort the samples using his/her own criteria.
The student
 sorts correctly according to his/her own criteria
 labels the sorting rules explains his/her choices
2. Have the student identify which of the paper samples is
 the easiest to cut the hardest to cut
3. Have the student identify which of the paper samples is
 the easiest to fold the hardest to fold
4. Have the student identify which of the paper samples is
 the easiest to tear the hardest to tear
5. Ask student which paper she/he would use to make a paper box to hold something, and to explain why.
 student selects appropriate paper type
 student's explanation includes references to folding, tearing, and/or cutting

Comments: _____

PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>

SUGGESTIONS FOR INSTRUCTION

➤ **Folding Paper**

Prepare sealable bags containing scraps of different types of paper, such as manila tag, newsprint, construction paper, tissue paper, bond paper, crepe paper, and notebook paper for each table. Explain to the students that they will be doing an origami activity (Japanese art form of folding paper) but the class must first determine the best paper for folding. Have the students explore by folding the different types of paper found in the bag (fold the paper in half, then in half again, etc.). After the exploration, have students select which paper they think would be best for doing origami. Discuss their findings using the following questions:

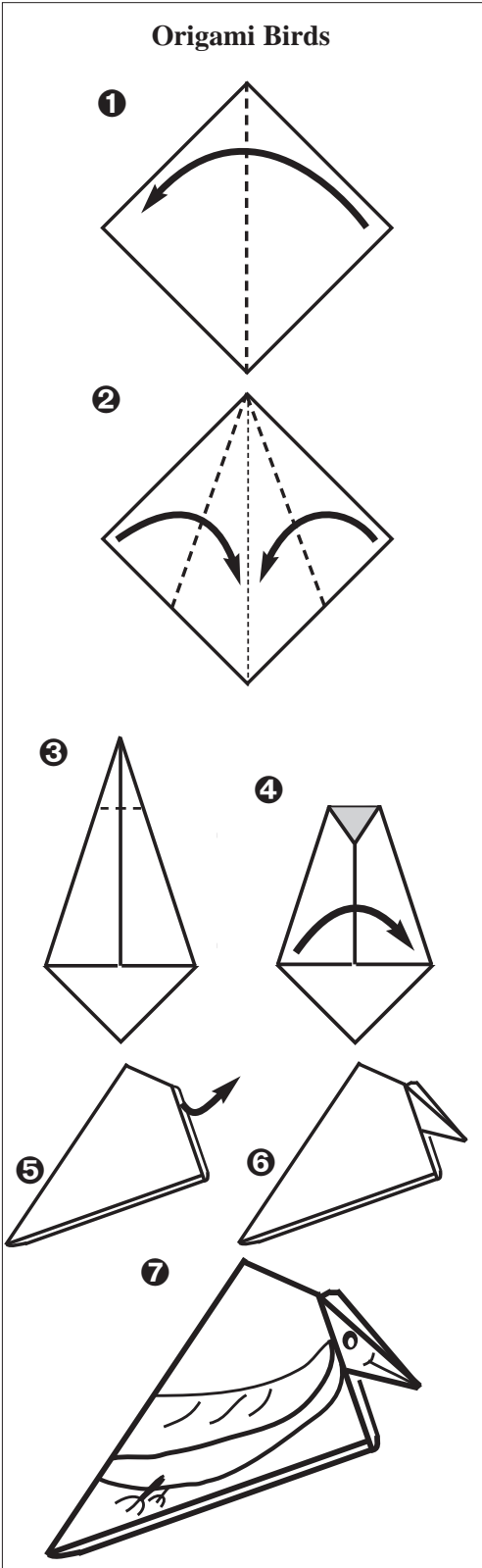
- Which paper is easiest to fold?
- How many times could you fold each paper?
- What characteristics of paper might be important for origami?

➤ **Origami**

Obtain books on origami from the library and as a class select a project to complete. Or, have students make an origami bird, following directions provided in the Teacher Notes.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT



PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>
<p>K-3-06 Explore to determine an appropriate kind of paper for a particular task.</p> <p><i>Examples: paper towels are useful for soaking up spills...</i></p> <p>GLO: B1, C3</p>
<p>K-0-1b. Make predictions as to what might happen during explorations. (ELA 1.2.1) GLO: A1, C2</p> <p>K-0-4e. Participate in cooperative group learning experiences. (ELA 5.2.1) GLO: C7</p> <p>K-0-4f. Verbalize questions during classroom learning experiences. GLO: C6</p> <p>K-0-5a. Observe using one or a combination of senses. GLO: C2</p> <p>K-0-7a. Recognize connections between new experiences and prior knowledge. (ELA 1.2.1) GLO: A2</p> <p>K-0-7b. Describe, in a variety of ways, what was done and what was observed. <i>Examples: concrete materials, drawings, oral language...</i> (ELA 4.1.2, 4.1.3) GLO: C6</p> <p>K-0-9b. Willingly observe, question, and explore. GLO: C5</p> <p>K-0-9c. Express enjoyment of science-related classroom activities. GLO: C5</p>

SUGGESTIONS FOR INSTRUCTION

➤ **Paper for Writing**

Provide small groups of students with pencils, crayons, and markers. Tell them that their task is to find out which paper is best for writing a letter. Each group should have a selection of 3 types of paper. Use photocopier paper, tissue paper, corrugated cardboard, wax paper, construction paper, etc. Different groups can look at different samples of paper. Have students begin by looking at the samples and discussing with their group how they are the same and how they are different (e.g., thickness, texture, colour, etc.). Have students draw the same image (flower, leaf, etc.) on each sample with the pencil and then repeat the drawing with the crayon and then the marker. Have each group share their observations and guide the sharing with the following questions:

- What did you observe when you wrote on each sample with the pencil, the crayon, and the marker?
- Which paper was best for writing on with the marker? Crayon? Pencil?
- Which kind of paper was hardest to write on? Why?
- If you were writing a note with a pencil, which paper would you choose to write on? Why?

➤ **Paper for Painting**

The following day, repeat the **Paper for Writing** procedure using water-colour paints with the same types of paper. Have students make predictions based on their previous experiences about what might happen. Have students use the paints to determine which paper is best for this activity and share their findings with the class.

➤ **Paper for Spills**

Tell students they must now determine which is the best paper for soaking up spills. As a class, select three types of paper to test. Working in small groups, have students put the paper sample over a clear plastic cup. Using an eye dropper, have students drop water onto the paper sample one drop at a time until the water soaks through and drips into the cup. Remind the students to count each drop they put onto the paper towel. Have students record and then discuss their results using terms like “more” or “less.” Have students order the samples according to how many drops they could hold.

Each group should share their recommendations with the class about the best paper for spills and explain their reasoning.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Observation Checklist: Paper for Writing, Painting, and Spills

Throughout the explorations of paper, observe and note evidence of the following skills and attitudes:

The student

- willingly observes, questions, and explores
- expresses enjoyment of the learning experiences
- asks questions related to use of paper
- works cooperatively
- is persistent and completes task

PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>
<p>K-3-07 Use the design process to construct a paper product for a particular use.</p> <p><i>Examples: paper cup, envelope, paper mat, box...</i></p> <p>GLO: C3</p>
<p>K-0-1c. Recognize a practical problem in a given context. GLO: C3</p> <p>K-0-3a. Brainstorm, with the class, possible solutions to a practical problem, and reach consensus on a solution to implement. (ELA 1.2.3, 3.1.3) GLO: C3, C7</p> <p>K-0-3b. Develop, as a class, limited criteria to evaluate an object based on its function. GLO: C3, C7</p> <p>K-0-4b. Construct an object to solve a problem or meet a need. GLO: C3</p> <p>K-0-4c. Identify, with guidance, improvements to an object with respect to pre-determined criteria. GLO: C3</p>

SUGGESTIONS FOR INSTRUCTION

➤ **Design Project**

Provide a context for the design project. This context can come from literature or from a real-life problem. A real-life example could be that students need to prepare for a special lunch for parents. They don't have a budget to purchase supplies and so must make their own. Things needed for the party could include any or all of the following items:

- place mats (woven paper)
- paper cups
- boxes (or square bowls)
- party hats
- invitations (including envelopes)

In planning how to construct one of these items, encourage students to take apart an existing product to use as a template or model. For example, they might take apart and trace a small gift box or envelope. Once a plan has been decided upon, the class must address the question of which type of paper would be best suited to the object. Example: Wax paper for a cup that will hold a liquid; paper that holds its shape but is easy to fold for an envelope. The class must develop clear evaluation criteria that focus on the objects' intended use. For example, what will the "bowl" need to hold? Remind students to follow given safety procedures and rules. Help students identify improvements for the objects once the initial construction has taken place.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Design Process Checklist

The student

- understands the problem
- contributes to class brainstorming of possible solutions
- contributes to the development of criteria
- constructs the object
- tests the object
- suggests possible improvements
- works cooperatively
- shares tools and materials
- asks related questions

NOTES