

Kindergarten: All About Attributes

Module Overview

The purpose of the module, **All About Attributes**, is to encourage students to use communicative and perceptive behaviors to think like a scientist. The module strengthens observation, description, and sorting skills. The attribute strategies serve as the foundation for subsequent Grade One and Grade Two Primary Talent Development (PTD) modules. Throughout the lessons, students will manipulate materials, play thinking games, and create products. This module is meant for all students. The classroom teacher should work with a specialist or special educator to find or develop alternate activities or resources for visually impaired students, where appropriate.

Focus Lesson 1: “Identify the Mystery House”

STANDARDS

- **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

TEACHER BACKGROUND

This lesson encourages students perceptive behaviors by:

- Looking at the attributes and communicating what they see as well as what they know.
- Students should understand that when they are communicating descriptions of an object, they are sharing the attributes of that object.

MATERIALS:

- Six House Posters
- Resource Sheets RS 1A, B, C, D, E, and F
- Perceptive Behavior Sheet RS 2
- House Clues RS 3
- Record keeping materials such as sticky notes or Perceptive RS 2
- Perceptive poster RS 4

ENGAGEMENT:

Show students one of the house posters, Resource Sheet (RS) 1A. Ask them to describe the house. List their descriptions. This is an ideal time to build vocabulary, which will be revisited in the Grade One Build It module. Descriptions may include: has windows, a porch, a garage, steps, etc. Tell the students that these words are called attributes. Write the words on sentence strips for future reference.

EXPLORATION:

Display a second house poster next to the first RS 1B. Ask students to describe how the houses are alike and different. The Pre K It Fits module provides appropriate prerequisite experiences. Capture *perceptive* responses using a record-keeping method such as RS 2.

EXPLANATION:

Explain that the ability to examine things closely and see patterns and relationships is being *perceptive*. Refer to the *perceptive* poster RS 4. Display the other four house posters alongside the first two, RS 1 C, D, E, and F. Challenge students to take away the house posters that do not fit the attribute mystery house clues you provide from RS 3. Remind students to use *perceptive* behaviors to decide which house is the “mystery” house.

EXTENSION:

Place one of the house posters in a learning center. Provide a collection of house pictures cut from magazines in an open tray or basket. Encourage students to identify the houses that share a common attribute with the house on the poster. Once they have created a group that shares one attribute like *steps* or a *chimney*, encourage students to change the house mixtures and sort by a different attribute like *steps* or *two stories*, to promote fluency and flexibility of thought.

EVALUATION:

Capture *perceptive* behaviors as students use attribute clues to take away houses. Date the artifacts and apply the REPI Developmental Continuum for *perceptive* behaviors. There will be opportunities to document behaviors in subsequent *All About Attributes* lessons, so it is not necessary to collect documentation for every student in every lesson.

THE FOLLOWING ARE THE FOCUS LESSON 1 TEACHER RESOURCES:

- **RS1C House C**
- **RS1D House D**
- **RS1E House E**
- **RS2 Peceptive Behavior Sheet**
- **RS3 House Clues**
- **RS4 Perceptive Poster**
- **RS1A House A**
- **RS1B House B**
- **RS1F House F**

Lesson 1: Introduction to Analogies

STANDARDS:

- **K.MD.A.2.** Directly compare two objects with a measurable attribute in common, to see which object has “more of” / “less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.
- **1.G.A.1.** Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

PURPOSE:

This lesson will focus on students communicative behaviors by:

- Encouraging metacognitive abilities
- Assessing the ability to analyze attributes and discern relationships
- Assessing the ability to transfer concepts about relationships from one set of items to another set of items

MATERIALS:

- Student Observation Form for Analogy Lesson, RS1
- Classroom set of attribute blocks
- Copies of Analogy 1, Analogy 2, and Analogy 3 (RS2)
- Analogy Organizer-Template RS3
- Classroom sized Analogy Organizer (see Analogy Organizer-Template)
- Six labeled bags of attribute blocks, prepared as described in “Guided Practice”
- Copies of Analogy Detectives-1 RS 6 and Analogy Detectives-2 for each student RS4

ENGAGEMENT:

1. Review with students what they know about the brain and lead them in “The Brain” chant to stimulate their awareness of their thinking or metacognition.
2. Explain to students that they will be using a new kind of thinking during this lesson called making analogies. Tell the students that analogies are used to figure out how things may be the same in some ways and different in other ways. Explain in depth that new sets of analogies can be made by using what we know about same and different characteristics.

EXPLANATION:

1. Discuss the terms *attributes* and *characteristics* with students.
2. Explain various block attributes (size, color, shape, thickness, position) to students in the following way:
 - Hold up two blocks that are the same in every aspect except size. Ask students to tell how they are the same and then how they are different. Display that pair for all of the students to see.

- Model in the same manner with pairs that are the same in every way except for color, then shape, then thickness, and then position.
3. Review with students each displayed pair and have students, as a group, tell how the pairs are different. It is important that they not confuse terms such as “big” and “thick.”
 4. Display copy of Analogy 1. Have students’ first look at the top row-- at the big white star and the little white star. Next, have students look at the center row--at the big white circle. Ask students which of the circles in the bottom row should go in the center row with the big, white circle to complete the analogy. (Analogy 1 answer: small white circle.)
 5. Ask a student to explain the answer to Analogy 1 to the class.
 6. Continue in like manner with copies of Analogy 2 and Analogy 3. (Analogy 2 answer: small white hexagon; Analogy 3 answer: four small white squares arranged in a square shape.)
 7. Explain that this type of comparison is one way of making analogies.

EXPLORATION:

1. Seat the students in a circle on the floor.
2. Display the attribute blocks from *Bag 1* on the *Analogy Organizer*, as described below.
3. Instruct students to compare the blocks in the top row and then move a block from the bottom row to the middle row to form an analogy between the top and middle rows.
4. Ask students: “Which attribute did you use to make this analogy?” (Note: for each bag, the attribute is listed in parentheses, and the solution is underlined.)
5. Repeat steps 2-4 for each of the remaining bags.

PREPARING THE BAGS OF ATTRIBUTE BLOCKS

Bag 1 (Color)

- Top row: a large thin blue rectangle, a large thin red rectangle
- Middle row: a large thin yellow hexagon
- Bottom row: a large thin red circle, a large thin blue circle, a large thin blue hexagon

Bag 2 (Size)

- Top row: a large thin yellow triangle, a small thin yellow triangle
- Middle row: a large thin red hexagon
- Bottom row: a small thin yellow hexagon, a small thin red hexagon, a small thin yellow circle

Bag 3 (Thickness)

- Top row: a large thick yellow rectangle, a large thin yellow rectangle
- Middle row: a large thick yellow circle
- Bottom row: a large thin yellow square, a large thin yellow circle, a large thick yellow square

Bag 4 (Shape)

- Top row: a large thick blue circle, a large thick blue rectangle
- Middle row: a large thick red hexagon
- Bottom row: a large thick yellow hexagon, a large thick blue hexagon, a large thick red rectangle

Bag 5 (Thickness, Color & Position)

- Top row: a large thick blue triangle, large thin red triangle in a different position
- Middle row: a large thick blue square
- Bottom row: a large thick red square, a large thin red square turned like a diamond, a large thin blue square turned like a diamond

Bag 6 (Size, Thickness, Color & Shape)

- Top row: a large thick yellow triangle, a small thin blue rectangle
- Middle row: a large thick red triangle
- Bottom row: a small thin blue hexagon, a small thick red rectangle, a small thick yellow rectangle

REFLECTION:

Ask students to try to define an analogy. Lead a discussion about when they might use this type of thinking.

EVALUATION:

1. Distribute *Analogy Detectives-1* for students to solve at their desks. Using the directions from “guided practice,” tell students to circle the correct answer in the bottom row.
2. Ask questions to encourage students to explain their reasoning as you circulate among them. The analogies have been carefully selected to reflect categories of size, addition/subtraction, shading, symmetry, position, and relationship. They have also been arranged in order from simple to more difficult.
3. Provide *Analogy Detectives-2* for students who complete *Analogy Detectives-1* successfully.

TEACHER OBSERVATION:

Record on the *Student Observation Form* the names of students **who were able to quickly and correctly identify attributes and answer the analogies**. Include comments as appropriate. Be sure to observe student abilities and strengths in reasoning. Student worksheets may be collected for assessment.

THE FOLLOWING ARE THE LESSON 1 TEACHER RESOURCES:

- RS2 Analogies
- RS3 Analogy Organizer
- RS4 Analogy Detectives
- RS1 Student Observation Form

Lesson 2: Guess the Rule

STANDARDS:

- **K.MD.A.1.** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- **K.MD.B.3.** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Limit the category counts to less than or equal to ten.
- **K.G.A.1.** Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as “above,” “below,” “beside,” “in front of,” “behind,” or “next to.”
- **K.G.A.2.** Correctly name shapes regardless of their orientations or overall size.
- **1.G.A.1.** Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, size): build and draw shapes to possess defining attributes.

PURPOSE:

- Observe perceptive behaviors
- Assess logical thinking by observing if students understand attributes

MATERIALS:

- Student Observation Form RS1
- Pattern Blocks, Attribute Blocks, Power Blocks or other objects that can be sorted
- 2 hula hoops or 2 large sheets of poster board, etc. for sorting objects
- 2 pieces of 12” x 18” construction paper for each student to use as mats for sorting objects
- "The Brain Chant" RS2
- "Attributes definition" poster RS3

ENGAGEMENT:

1. Ask students to review what they have learned about the brain and lead them in chanting “The Brain” chant from RS2. Tell them they will use what they know about how things are the same and different. They also will use logical thinking in this lesson.
2. Review the definition of the word “attributes” from RS3.
3. Put two hula hoops or large sheets of poster board on the floor and sort objects by one attribute. (For example, place red circles in one hula hoop and blue circles in the other hula hoop.) Ask the students to identify the attribute that you sorted by. (Answer: color)
4. Continue to sort other objects by attribute (i.e., shape, size, thickness, type of object, etc.), each time asking the students to identify the attribute that you sorted by.
5. Consider leaving out some objects for students to place in the correct hula hoop.
6. Use two pieces of 12” x 18” construction paper to model sorting objects by attribute, explaining that students will need to state what attribute they are sorting by.

EXPLORATION:

1. Distribute to each child the two pieces of construction paper and objects that may be sorted by at least three different attributes (color, size, shape, thickness). Instruct students to sort objects onto their mats by attribute. After students have sorted objects by one attribute, ask them to sort the objects another way.
2. Play *The GateKeeper Game*:
 - Children meet on the carpet sitting in a circle. Attribute blocks are in the center in a pile.
 - Each child takes one attribute block, examines it carefully, and whispers to a classmate the attributes describing the block they chose.
 - Invite children to stand in a circle with their attribute block.
 - The teacher says, "I will write an attribute on a piece of paper and place it in my pocket so no one can see. If your block has the same attribute I wrote down, you will pass through and sit in the center of the carpet. Then we will compare the blocks that passed through to identify the attribute I wrote on the paper."
 - Tell them you will walk up to each of them, and they will need to ask this question: Gate Keeper, may I please pass through?" (Have the children practice saying the question. You may want to write it on the board.)
 - The teacher walks to each child, and they ask the question. If their block has the attribute, they pass through and sit in the center of the circle. If not, ask them to please sit back down on the perimeter of the circle.
 - At the end of the activity, ask the children to compare all the blocks that passed through and identify the attribute they all have in common.
 - The teacher may ask, "How are the blocks the same? How are they different? Tell about a block that would not fit and explain why."
 - The game can be played with more than one attribute written on a piece of paper.
 - Children with a strong ability to identify attributes should be encouraged to be the Gate Keeper in future games.

EXTENSION:

Take a nature walk for each student to gather items in a bag and then return to the classroom to sort the objects by as many different attributes as they can.

EVALUATION:

Record the names of students who quickly and correctly discern attributes and who sort by single attribute and/or multiple attributes on the *Student Observation Form*.

REFLECTION:

Lead a discussion with students about items they may need to sort at home or school, how they are sorted, and the value of sorting.

THE FOLLOWING ARE THE LESSON 2 TEACHER RESOURCES:

- **RS3 Attribute definition/discussion**
- **RS1 Student Observation Form**
- **RS2 Brain chant**

Lesson 3: Logic Trains

STANDARDS:

- **K.MD.1.** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- **K.MD.3.** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Limit the category counts to less than or equal to 10.
- **K.G.1.** Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
- **1.G.A.1.** Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

PURPOSE:

Assess logical thinking by observing students determine attributes

MATERIALS:

- Student Observation Form RS1
- Attribute Blocks or Power Blocks
- Snake Your Way! Game Board and Directions (see “Extension”) RS2

EXPLANATION AND ENGAGEMENT:

- Review the definition of the word “attributes” from Identification Lesson 2. Tell them they will use what they know about how things are the same and different. They also will use logical thinking in this lesson.
- Arrange students in a circle on the floor and place various Attribute Blocks or Power Blocks inside the circle.
- Select a block and model how to examine it for its attributes (color, shape, size, thickness). Invite individual students to do the same and return the block to the center of the circle.

- Select a block and display it for the students. Call on an individual student, telling him/her to select a block that differs in only one attribute from the block displayed (i.e., the teacher picks up a yellow circle, and the child may pick up a blue circle, yellow square, red circle, yellow triangle, etc.).
- Repeat this procedure until it is clear that students understand the concept.
- Model how to play the game “Logic Train” as follows:
 - First-person in the circle selects an attribute block and places it in front of him/her.
 - Next person in the circle places a block that differs in only one attribute from the block displayed and places it either to the right or the left of the first block.
 - Next person in the circle selects an attribute block that differs in only one attribute from a block on the right or the block on the left and places it next to that block to form the logic train.
- Have students continue this process of making the logic train until they understand the game.

EXPLORATION:

Put students in groups of six to play the game “Logic Train.”

EVALUATION:

On Student Observation Form, record names of students who quickly and correctly state attributes and place blocks on “Logic Train.”

EXTENSION:

- Extending the “Logic Train” game as follows:
 - Have students form the logic train in a single line using consecutive blocks that differ by two or three attributes.
 - Have students form the logic train by placing blocks that differ by one attribute to the right or left of the identified block and placing blocks that differ by two attributes above or below the identified block.
- Provide enrichment by having students play Snake Your Way!

THE FOLLOWING ARE THE LESSON 3 TEACHER RESOURCES:

- **RS1 Logic Trains Student Observation**
- **RS2 Snake Game Board**

Lesson 4: The Name Game

STANDARDS:

- **K.L5.a.** Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent. With prompting and support, sort and categorize objects. With prompting and support, discuss commonalities among groups of words
- **1.L1.f.** Use frequently occurring adjectives. Identify and define adjectives in-text presented in a variety of formats. Demonstrate the correct use of adjectives in oral and written language.

- **K.MD.A.1.** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- **K.MD.B.3.** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

PURPOSE:

Assess logical thinking by observing if students understand attributes

MATERIALS:

- Student Observation Form for Identification RS1
- Bag containing puppets, pictures, or stuffed animals, etc. with different attributes (such as furry, fuzzy, smiley, toothy, striped, large, small, red, yellow, etc.)
- Copies of Frizzy Cat, Toothy Cat, Stripey Cat, and Frizzy-Toothy-Stripey Cat RS2
- Document Camera
- Copy of Frizzy-Toothy-Stripey Cat for each student (RS2)
- Crayons

ENGAGEMENT:

1. Introduce the word “attributes,” helping students to understand that attributes of a person or object are characteristics or those things that help to distinguish between or among different persons/objects. (See Lesson 2)
2. Select four students with some different attributes and place them in front of the class.
3. Play the game “Discriminating Detectives” by giving clues to describe the attributes of the selected students. See the sample game and clues below.
 - “The person I am thinking of has on long pants.” (Three students have on long pants, so the person not wearing long pants sits down.)
 - “The person I am thinking of has on a short-sleeved sweater.” (Two students have on a short-sleeved sweater, so the person not wearing a short-sleeved sweater sits down.)
 - “The person I am thinking of has a pink ribbon in her hair.” (Only one student has a pink ribbon in her hair, so the student not wearing a pink ribbon sits down.)
 - Have one student in the class state the attributes (example: “The person you are thinking of has long pants, a short-sleeved sweater, and a pink ribbon in her hair.”)
4. Play the game again.

EXPLANATION 1:

1. Pull one of the puppets, pictures or stuffed animals from the bag, show it to students, and describe its attributes (color, size, shape, etc.) For example, “This is a brown, furry, big, soft teddy bear.”
2. Have a student pull an item from the bag and describe its attributes.
3. Help students to name the item based on its attributes. For example, “This is “Long-Green-Skinny Snake.”
4. Repeat steps 2 and 3 until all items in the bag have been described and named.

EXPLANATION 2:

1. Display a copy of Frizzy Cat and ask students to describe the attributes of the cat at the top of the picture and how it differs from some of the cats below.
2. Ask students to identify Frizzy Cats on the copy More Frizzy Cats.
3. Repeat steps 1 and 2, using copies titled Toothy Cat and Stripey Cat.

EXPLORATION:

1. Show a copy of Frizzy-Toothy-Stripey Cat and explain that each student is to use crayons to turn the cat into a “Frizzy-Toothy-Stripey Cat.”
2. Ask him/her to draw a real or imaginary animal on the back of the paper and name it based on its attributes (color, size, shape, etc.). This is where you will see students apply an understanding of attributes.
3. Have students share their pictures and names of the animals they have drawn.

EVALUATION:

Record the names of students who quickly and correctly named, discriminated among, and/or drew attributes on the Student Observation Form.

Reflection:

Lead a discussion about how naming and discriminating attributes might help them in school or at home.

EXTENSION:

- Having small groups of students develop their clues to describe students and using the student-created clues to play “Discriminating Detectives” again with the entire class
- Creating a bulletin board of students’ pictures of imaginary animals and discuss the attributes of those animals.

THE FOLLOWING ARE THE LESSON 4 TEACHER RESOURCES:

- [RS1 Lesson 4 Student Observation](#)
- [RS2 Lesson 4 Frizzy Cats](#)

Lesson 5: Odd One Out Bags

STANDARDS:

- **SL K.1.** Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups
- **K.MD.B.3.** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count

PURPOSE:

Students will demonstrate *perceptive* and *communicative* behaviors to exclude an item from the group by identifying the essential attribute.

MATERIALS:

A large brown bag, 10 – 12 familiar items (see the lesson for suggestions), a small brown paper bag for each student, Odd One Out RS1 for each student pair

EXPLANATION AND ENGAGEMENT:

Review the previous lesson, which focused on naming the *essential attribute* or RULE that named a set or group. Randomly select three students to serve as a set or group. Challenge students to suggest as many names based on the attribute for the group as possible—for example, *the boys' club*, *the long pants club*, *the ponytail club*.

EXPLORATION:

Show students a large, brown paper bag that has been filled with a broad range of 10 to 12 familiar items like *pencil*, *eraser*, *chalk*, *marker*, *stapler*, *comb*, *spoon*, *cup*, *lipstick*, and *a paper clip*. Have students name each item as it is pulled from the bag. Lay items out so that they can be seen.

EXPLANATION:

Explain to students how to play 'Odd One Out.' Pick three items from the display and arrange them as a set. Explain that the game requires them to decide *which two items share an essential attribute that the third item does not have*. Encourage them to isolate that item, calling it the 'odd one out.' Remind them to explain reasons for excluding that item from the set. Discuss how there is more than one right answer.

EXTENSION:

Give each student an empty brown lunch bag. Instruct them to go around the room and gather three different items to put in their 'odd one out' bags. Items accessible in kindergarten classrooms might include small toys, prizes, desk items, math manipulatives, shells, and rocks. Gather students on the rug. Assign

partners, calling them Partner A and Partner B. Have them swap bags. Consider creating an audio or video recording.

EVALUATION:

Direct Partner A to open the 'odd one out' bag and look closely at the three items. Remind Partner A to think about the attributes of each item and decide *which two items share an essential attribute that the third item does not have*. Partner A takes that item away from the set, calls it the 'odd one out,' and explains to Partner B the reason for excluding that item. Repeat the process with Partner B. Continue taking turns.

THE FOLLOWING ARE THE TASK 6 TEACHER RESOURCES:

- [RS1 Lesson 5 Odd One Out Bags](#)

Bridging: Odd One Out

STANDARDS:

- **SL K.1.** Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups
- **K.MD.B.3.** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count

PURPOSE:

Students will demonstrate *perceptive* and *communicative* behaviors to include or exclude items from a group by identifying essential attributes. Think about the general attributes of color, shape, size, pattern, form, and function when making selections to increase complexity.

MATERIALS:

- *Gray Rabbit's Odd One Out* by Alan Baker,
- Markers, objects, or pictures
- RS1 Lesson 5 Odd One Out Bags (from the previous lesson) for each student
- Technical Resource TR1 Odd One Out and Computers

PROCEDURES:

Read *Gray Rabbit's Odd One Out* by Alan Baker.

Before: Examine the front cover, take a picture walk, and make predictions. Set the purpose, which is to identify the 'odd one out' by analyzing the toys' attributes.

During: Read the story and point out the visual clues. Have students determine which toy is the 'odd one out' on each page and request reasons for their decisions, like the book is the 'odd one out' because it is not a block.

After: Discuss how observing attributes helped create the essential rule and helped figure out the odd one.

- Create three large connecting boxes on chart paper, a dry-erase board, or chalkboard. Think aloud about the essential attribute. (*I'm thinking about using the color red.*) Model by drawing a red circle in one panel, a red square in one panel, and a blue square in the third panel. Name and label each panel. Ask students which is the 'odd one out'? (*The initial response will likely be "the blue one."*) Challenge students to think if they might be able to give a different answer and tell why. (*The red circle because the other two are squares.*) Model this several times. Change the complexity and number of attributes. There does not have to be a single right answer; any one of the drawings can be the *odd one out* as long as it does not share the essential attribute that the other two have in common. **Additionally, you can use the technology resource TR1, *Odd One Out*, as an instructional tool or assessment for students that will benefit from this alternative.**
- It is the students' responses that reveal their understandings and gives evidence of the *perceptive* and *communicative* behaviors.
- Give each student RS1 Lesson 5 (see the previous lesson) with instructions to make a page that shows an 'odd one out' example. Explain that this page will become a part of a class book. Guide and support students' efforts while capturing *communicative* and *perceptive* comments or behaviors on the students' resource sheets. Use clarifying questions to give students practice in using attribute terms and identifying the essential rule.
- Apply the REPI Developmental Continuum to each student's page. Place the book in the class library. Continue to provide opportunities for *communicative* and *perceptive* behaviors in other subject areas.

EVALUATION:

Have students complete the Bridging Activity individually to promote original responses and capture portfolio documentation.

THE FOLLOWING ARE THE TASK 7 TEACHER RESOURCES:

- [TR1 Lesson 5 Odd One Out](#)
- [TR 1 Lesson Odd One Out PowerPoint](#)