

Planning Template for *Investigations* Sessions

Unit: Questions & Secret Rules
Grade 1

Investigation: One

Session: Session 1:
Sorting Shapes- Attribute blocks and guess my rule.

Mathematical Emphases/Standards:

Exploring & describing data-guess my rule, differences & similarities, describe data attributes.

Students are able to describe given data by identifying the rule for sorting methods

1.2.1 Understand and apply attributes to describe and compare objects

1.3.2 Understand how to compare figures based on their characteristics.

3.1.1. Understand how to **compare** information presented in familiar situations

Classroom Routines/Ten-Minute Math:

Not applicable

Materials and Student Sheets:

- Attribute Blocks
- Strong Tape
- Flash cards-for shape vocabulary
- Pencils
- Sharpies/Markers
- Chart Paper
- 11x14 paper
- 6 small containers

Optional:

- Document Camera
- Digital camera

Computer/Digital Projector

Teacher Supports:

Digital camera, laptop projector, teacher attribute blocks, overhead projector

Management Issues:

Where will students be for instruction?

- For discussions before and following the investigation, students will be seated in a circle with the teacher on the rug.
- During the investigations, students will be seated in desks with their partners (in pairs).

How will students get materials?

- Materials will be placed on their desks prior to the start of the investigation. Student materials are to stay at desks at all times.

What groupings will students be in during work time?

- Students will be paired up using clothespins. -For the field lesson, I will have pre-paired students based on their literacy groups.

Where will students be for sharing?

- Students will share their shape attributes and secret rule groups on the rug.

Focus Questions:

Hook/Intro: Rug-3 Min.

- Open with an example of objects that are grouped-How things are alike and different (find something in the classroom to group)
- Talk about how we group things in life- solicits responses of what students sort (ex. Include candy, coins and dollar bills, shirts and pants)
- Introduce the day's investigation-how we will practice sorting colored shapes according to their attributes- their size, shape, color, etc.
- Ask students to come up with attributes for the colored shapes.

Investigation of Shape Attributes: Desks-5 Min.

- Students investigate the shapes to come up with attributes to describe them.
- Circulate to provide additional scaffolding/prompting as necessary.

Or (will take less time)-still at Rug

- Show all of the different shapes affixed to index cards (with the names of the shapes) as well as have the shapes on the rug for students to explore.

Discussion of Shape Attributes: Rug-5 Min.

- During discussion, record attributes on chart paper.
 - Start with general attributes
 - Move to specific attributes of each shape: what color, how many sides, how thick?
 - Optional: Can support the process by exploring each shape individually by showing it on the document camera or affixed to index cards. Talk about individual attributes of each shape.

Teacher Modeling & Guided Practice: Rug-10 Min.

- On the carpet, introduce how they will be sorting shape block according to their "secret rule".
 - Take out blocks and sort them according to your secret rule. Model putting name on the paper and circling the group. (See TERC p.6)
 - Ask students not to say what they think the secret rule is.
 - Ask students to then take 1 shape and add it to the pile to add to the "secret rule".
- *If students are having trouble figuring out what the rule is, have the students whisper the rule to each other.
- Set expectations-State what students are expected to do and what we will do while they are working. -Each person sorts and then ask partner to guess their secret rule.
 - Pair off and release students to their desks-explicitly state where they will be sitting.

Independent Practice: Desks- 10 Min.

- Students work on sorting their shapes-Have them put their name on the 11x14 paper and instruct them to circle their group once they have finished forming it.
- Circulate to support/scaffold/manage

Discussion/Sharing: Rug- 10 Min.

- Project pictures of each student's work. Ask them to tell us their secret rule. List secret rules using chart paper.

Or- (will take less time)

- Bring students onto the rug and explain how we will do a gallery walk around the classroom to look at each student's work. Come back to the rug to share and list students' secret rules.

Assessment Questions (if any):

Informal:

- What was the hardest/trickiest part of making a rule?
- What did you have to do first?
- What was the trickiest part of guessing your partner's rule?
- (Making connections) Do you play any games like this at home?
- (Activating knowledge for homework) What might you find at your home that you could group with your secret rule?

Homework:

Pick 10 objects you find where you live. Make up a "secret rule" to sort them, and draw them in the groups. *Model how you would like student work to look using the overhead and an example...perhaps using buttons, leaves or fruit drawn in groups according to a color rule.*

Things to anticipate (including modifications for special situations):

- Some students may have difficulty expressing or comprehending the words for attributes; particularly English language learners.

Modifications:

1. Attach the shape blocks to the attribute chart; writing student responses beside these shapes as well as adding other attributes that may be needed but were not mentioned.
2. As attributes are discussed, illustrate the meanings where possible verbally, visually, and tactilely.
3. Keep the attribute chart in the students' view during each activity.

- Some students may become frustrated if they can't guess a secret rule.

Modification

1. At the start, tell students that some rules are easy to guess while others are not, if they can't guess a rule during partner work, allow the partner to tell the rule, and move on.
2. Allow students to ask for another student to whisper in their ear what they think the secret rule is during whole class activities, or allow students to "pass" if they don't know.

- Students may create rules that others won't be able to figure out by using their own opinions or feelings to sort, rather than the blocks outward physical appearance.

Modification

1. In describing and discussing attributes during initial group discussion, specify that you can't use "my favorites", or "the ones that I think are prettiest" as attributes because these words describe how you feel or think instead of the attributes of the objects.

Notes: