**Grade Level and Unit:** Grade 2; Unit 7

**Session and Description of Lesson Tasks:** Session 2.1

**Materials needed:**

* Square pieces of paper (3 per student)
* Crayons
* 4 Quarters
* Clock
* Chart: “Different Ways to Show Fourths”

**Grouping Decisions:** Students will collaborate in pairs, but independently create their own models of ¼.

**Mathematical Objective(s)**

What are your core mathematical ideas for this lesson? What do you intend all students to know and understand about mathematics?

* Students will be able to explore different ways to make fourths of a square.
* Students will be able to recognize the equivalence of different fourths of the same object.

**Language Objectives:**

What mathematical language will you model during the lesson? What mathematical language do you expect to hear during student discourse?

* Students will be able to verbally use the term ‘one fourth’ when explaining equal parts of a square.
* Students will be able to write the notation ¼ when recording shaded regions of a square.

**Connect and Anticipate: In what ways does the lesson build on students’ previous knowledge? What student strategies and responses do you anticipate? What misconceptions and struggles might students have?**

* Builds upon students’ knowledge of one half and the idea of dividing a square and circle into equal parts.
* Students may struggle with the notation portion of the lesson.
* Students may also struggle with recognizing that ¼ of a square that is divided in half horizontally is THE SAME amount as ¼ of a square that is divided in half diagonally.

**Focus Questions**

Consider what questions you will use to focus on students’ thinking to encourage sense-making and discourse.

“*What does it mean to divide something in half?*”

“*If I want to share my sandwich with another person, why is it ‘fair’ the break it in half?”*

**LAUNCH: To introduce the activity**

* Distribute a piece of square paper to each student and ask students to fold it so that is makes two equal pieces.
* Guiding questions: *“What shape are your halves?” “Did your fold divide the square into equal triangles or equal rectangles?”*
* Students make predictions about what their squares will look like when they fold them in half again.
* “*When something is dividing into four equal pieces, each piece is called one fourth”*
* “½ is how we write one half, so ¼ is how we write one fourth”
* Students label each of the fourths in their square as 1/4 THEN color each piece a different color.

**EXPLORE: To assess students’ understanding and to advance their thinking as they work independently, in partners or small group**

* Students create additional ways to create ¼ using additional squares.
* Challenge students to work through new ways using the co-created chart as a model.

**SUMMARY: To facilitate the analysis and synthesis of ideas shared at the end of the lesson**

* Gather as a class to discuss the chart “Different Ways to Show Fourths.”
	+ *Do you think you would get more of sandwich if you took ¼ of this sandwich (point to the one divided into 4 rectangles), or this one (point to the one divided into 4 squares)?*

**Evidence: How will you know what students understand? What evidence will you collect?**

(If there is an exit task, what will be its focus to inform your instructional next steps?)

* Take a poll of students based on the questions above. Record the results on “It would be the same amount of sandwich” and “No, one is bigger than the other.” This information will be used to inform the next steps. Teacher can see what students need additional support to understand that ¼ no matter what the shape is an equal amount of area

**Notes and Reflections:**

**Grade Level and Unit:** Grade 2; Unit 7

**Session and Description of Lesson Tasks:** Session 2.2

**Materials needed:**

* SAB 22-25
* Chart: “Flags in Halves, Thirds, and Fourths”
* Chart: “Fractions”

**Grouping Decisions:** Students will collaborate in pairs.

**Mathematical Objective(s)**

What are your core mathematical ideas for this lesson? What do you intend all students to know and understand about mathematics?

* Students will be able to identify halves, thirds, and fourths of regions.

**Language Objectives:**

What mathematical language will you model during the lesson? What mathematical language do you expect to hear during student discourse?

* Students will be able to verbally use the term ‘one third’ when explaining equal parts.
* Students will be able to write the notation 1/3 when recording shaded regions.

**Connect and Anticipate: In what ways does the lesson build on students’ previous knowledge? What student strategies and responses do you anticipate? What misconceptions and struggles might students have?**

* Builds upon students’ knowledge of one half and the idea of dividing a square and circle into equal parts.
* Students may struggle with the notation portion of the lesson.
* Students may also struggle with changing from analyzing squares to rectangles.

**Focus Questions**

Consider what questions you will use to focus on students’ thinking to encourage sense-making and discourse.

“*How many parts are there?”*

*“How many parts are shaded? (or a certain color)”*

**LAUNCH: To introduce the activity**

* Display transparency (T75)
* *“How many parts is this flag divided into?”*
	+ REPEAT FOR ALL FLAGS
* Write *half and ½* and *fourth* and ¼ on the board.
* Tell the class that one of three equal parts is called *one third*
	+ *“How do you think I would write one third?”*
	+ *“When we write fractions, we use two numbers. The bottom number tells you the number of parts in the whole. For the fraction 1/3 there are three parts in the whole.” (can introduce the term denominator)*
* Fill in the ‘Fractions’ chart to organize the fractions they know so far.
* Briefly discuss that they are from biggest to smallest.
* Guided Practice: SAB pg. 22
	+ Flag 1:
		- *You are going to color these flags and write what fraction is shown by each color.*
		- *1. How many parts in this flag? (3)*
		- *2. What are the parts called? (thirds)*
		- *3. Color the first third blue, the next third white, and the last third red.*
		- *4. What part of the flag is blue? What part is white? What part is red?*

**EXPLORE: To assess students’ understanding and to advance their thinking as they work independently, in partners or small group**

* Students work on pages SAB 22, 23, and 24

**SUMMARY: To facilitate the analysis and synthesis of ideas shared at the end of the lesson**

* Review PAGES 23 together as a class.

**Evidence: How will you know what students understand? What evidence will you collect?**

(If there is an exit task, what will be its focus to inform your instructional next steps?)

* Exit Ticket: Display a flag and have students write the fraction for each color.

**Notes and Reflections:**

**Grade Level and Unit:** Grade 2; Unit 7

**Session and Description of Lesson Tasks:** Session 2.3

**Materials needed:**

* T26
* Chart: Thirds and Fourths
* Chart: Fractions (From 2.2)

**Grouping Decisions:** Students will collaborate in pairs.

**Mathematical Objective(s)**

What are your core mathematical ideas for this lesson? What do you intend all students to know and understand about mathematics?

* Students will be able to identify halves, thirds, and fourths of regions.
* Students will be able to identify and name fractional parts that have numerators greater than 1 (ex: 2/3, 2/4, ¾).

**Language Objectives:**

What mathematical language will you model during the lesson? What mathematical language do you expect to hear during student discourse?

* Students will be able to verbally use the terms halves, thirds, and fourths to discuss various fractions.
* Students will be able to write the notation for fractions that contain more than one part (ex: 2/3, 2/4).

**Connect and Anticipate: In what ways does the lesson build on students’ previous knowledge? What student strategies and responses do you anticipate? What misconceptions and struggles might students have?**

* Builds upon students’ knowledge of thirds, fourths, and parts of a whole.
* Students need to understand the numerator as 1 in order to move on to higher numerators.
* Students may have trouble with the fact that fractional parts do not need to be next to each other in order to be part of unit.

**Focus Questions**

Consider what questions you will use to focus on students’ thinking to encourage sense-making and discourse.

“*How many equal parts is this flag broken into?”*

*“How many parts are shaded\_\_\_\_\_\_\_?”*

**LAUNCH: To introduce the activity**

* Show the Nigerian Flag and ask students what they can tell you about it.
* Questions:
	+ *How many equal parts is the flag divided into?*
	+ *What are the parts called? (thirds)*
	+ *How many parts are colored white?*
	+ *What fraction of this flag is colored white?*
	+ *If one third of the flag is white, what part of the flag is green?*
* Teacher: Two of the thirds are colored green, so we say that two thirds of the flag is green.
	+ \*Add row to ‘Fractions’ chart and record information with the students.
	+ Highlight: Even though the colors aren’t next to each other it is still 2/3
	+ “*What does the 2 stand for in 2/3 and what does the 3 stand for?”*
	+ Write: 1/3 white and 2/3 green

**EXPLORE: To assess students’ understanding and to advance their thinking as they work independently, in partners or small group**

* Students work through SAB 27-30
* STUDENTS design their own flags and are encouraged to choose various colors and fractional parts.

**SUMMARY: To facilitate the analysis and synthesis of ideas shared at the end of the lesson**

* + Reinforce the fact that parts of the whole do not need to be next to each other in order to be part of the numerator.

**Evidence: How will you know what students understand? What evidence will you collect?**

(If there is an exit task, what will be its focus to inform your instructional next steps?)

* + The students’ work on SAB 27-30 (or however far they get) will be used to inform the instructional next steps.

**Notes and Reflections:**

**Grade Level and Unit:** Grade 2; Unit 7

**Session and Description of Lesson Tasks:** Session 2.4

**Materials needed:**

* SAB 27-30 from Session 2.3
* M15-M22
* Fraction Flag Charts
* crayons and tape
* Fraction Flags Poster

**Grouping Decisions:** Students will move through various groupings. Whole 🡪 independent 🡪 whole

**Mathematical Objective(s)**

What are your core mathematical ideas for this lesson? What do you intend all students to know and understand about mathematics?

* Students will be able to identify halves, thirds, and fourths of regions.
* Students will be able to identify and name fractional parts that have numerators greater than 1 (ex: 2/3, 2/4, ¾).

**Language Objectives:**

What mathematical language will you model during the lesson? What mathematical language do you expect to hear during student discourse?

* Students will be able to verbally use the terms halves, thirds, and fourths to discuss various fractions.
* Students will be able to write the notation for fractions that contain more than one part (ex: 2/3, 2/4).

**Connect and Anticipate: In what ways does the lesson build on students’ previous knowledge? What student strategies and responses do you anticipate? What misconceptions and struggles might students have?**

* Students will have to use knowledge from the past sessions in Investigation 2 in order to participate in this activity and discussion.
* Students need to be able to identify fractions and relate them to the visual representation.

**Focus Questions**

Consider what questions you will use to focus on students’ thinking to encourage sense-making and discourse.

“*Why do you think these flags belong on this poster?”*

*“Why wouldn’t this flag (choose on) belong on this poster (choose an incorrect one)?”*

**LAUNCH: To introduce the activity**

* Show students the posters in the room labeled with fractions represented by different flags.
* Students select one flag that they made in SAB 27-30 and re-create it on a new template.
* Encourage variety among the students.

**EXPLORE: To assess students’ understanding and to advance their thinking as they work independently, in partners or small group**

* Students create their fraction flags independently.
* Students should be encouraged to create additional flags if they finish early.

**SUMMARY: To facilitate the analysis and synthesis of ideas shared at the end of the lesson**

* Gather as a class to discuss the charts that have been created.
* *“For the last few days we have been making Fraction Flags to learn about halves, thirds, and fourths and to see different ways to make those fractions.”*
* Class analyzes the posters and students can point out if they see any flags that have been incorrectly placed.

**Evidence: How will you know what students understand? What evidence will you collect?**

(If there is an exit task, what will be its focus to inform your instructional next steps?)

* Teacher will observe students’ initial placement of their flags in order to assess what students have mastered the concept of fractional parts and what areas need to be reinforced and for who.

**Notes and Reflections:**