**Content Area:** Math **Grade Level: 5**

**Content Standard:**

**PASA Anchor:**M5&6.AA.1 Demonstrate an understanding of numbers, ways of representing numbers,relationships among numbers and number systems.

**PASA linked to PSSA Anchor(s):**

**Grade Level PSSA Anchor/Eligible Content:** M5.A.1.1 Express numbers in equivalent forms.

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| **Webb’s Depth of Knowledge (Cognitive Demand)** |
| **[ ]  1 – Recall** **[x]  2 – Application of Skill/Concept** | **[ ]  3 – Strategic Thinking****[ ]  4 – Extended Thinking** |

**Big Idea:** Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.

• Numerical quantities and calculations can be estimated by using numbers that are close to the actual values, but easier to compute.

• Patterns exhibit relationships that can be extended, described, and generalized.

• Two- and three-dimensional objects can be described, classified, and analyzed by their attributes, and their location can be described quantitatively.

**Essential Questions:** M3.A.1.2.1 - Write the fraction that corresponds to a drawing or part of a set (numerators 1-9, denominators 2-10. No equivalent or improper fractions or mixed numbers).

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| **Prioritization**  |
| [ ]  Skill is assessed in the general assessment [ ]  Skill is assessed in the alternate assessment[ ]  Skill is required for future learning in the content area [ ]  Needed in next age/appropriate environment[ ]  Required for instructional activities in a variety of practice communities[ ]  Lesson plan available in SAS Voluntary Model Curriculum |

**Example of General Education Instructional Activity:** Grade 5 Math

Students will:

**Introductory Activity:**

“Today we are going to continue our work with fractions. We will be making fraction strips. We will use the fraction strips to make observations about fractions and play a fraction game.”

As an introductory activity, read (listen) the book Jump, Kangaroo, Jump by Stuart J. Murphy to your students. Look at the pictures and talk about what is on each page.

“Before I give you a problem to solve, I would like to read a book to you. Let’s look at the cover. What do you think our book will be about?” Take student suggestions and predictions about the book. “The title of the book is Jump, Kangaroo, Jump by Stuart J. Murphy. As we read the story I want you to notice the strategies the children in the book use to solve their problems.”

Ask students questions about the book and groups of items on each page as you read. Sample questions could include:

* “What did you learn from the book?”
* “What was the problem at the beginning of the story?”
* “How were fractions represented in the book?”
* “Give an example of equal sharing in the book. Explain.”
* “What happened at the end of the story?”

**Fraction Strips Activity:**

Make copies of the color fraction strips page provided ([3-4-3\_Color Fraction Strips.doc](http://websites.pdesas.org/mwitkowski/2009/12/3/813/file.aspx)). Have students cut the fractions apart. The only fraction strip that should not be cut is the 1 whole. Instruct students to write their initials on the backs of the fraction strips so they will be able to keep them for further lessons.

“Each of us has made our own set of fraction strips. We will be using the fraction strips throughout the year. I’m going to give you a few minutes to explore your fraction strips. If you wish, you and a neighbor can put your pieces together and explore the fraction strips. I will ask you to stop in a few minutes so we can regroup and discuss your observations.”

You may want to let students explore for about 10 to 15 minutes. Then allow students to share observations they made while working with the fraction strips.

“Write down some observations you made in your math journal. What connections did you make? What surprised you? Did you see any relationships?” Give students about five minutes to write down their observations. Some students might use the fraction strips to help them clarify their thinking while they are writing. Walk around to groups of students asking them to explain their work. Clarify any misunderstandings.

“Let’s hear some of your observations.”

“We will be using our fraction strips during the year, so I will pass out an envelope to everyone. Please write your name on the outside of the envelope and place your fraction strips inside.”

You will have opportunities to assess students while they are exploring the fraction strips and through discussions and questions. Students may need to be pulled into small groups to further clarify understanding.

Some sample questions include:

* “Are these two fractions equivalent? Explain.”
* “What do you notice about 2/3 and 4/6 ?”
* “What patterns do you notice?”
* “How are the fraction strips helping you find equivalent fractions?”

Ask students to explain their thinking. When students share their answers, it is important to emphasize the equivalence of different representations.

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| **General Instructional Format** | **Formative Assessment Options**  |
| **[ ]  Cooperative learning****[ ]  Project based****[x]  Performance event/task****[ ]  Note-taking****[ ]  Presentation****[x]  Direct Instruction (I do, We do, You do)****[ ] Indirect Instruction****[ ] Other:** | **[ ]  Observation with Data Collection****[ ]  Random Reporter** **[ ]  Ticket out the door** **[x]  Think Pair Share** **[x]  Student work sample** **[ ]  Video tape****[ ]  Multiple choice Item** **[x]  Open response Item** **[ ]  Item Other:** |

**Access to the Instructional Activity for Students at Different Communication Levels**

**Symbolic**

Students will:

**Introductory Activity:**

“Today we are going to continue our work with fractions. We will be making fraction strips. We will use the fraction strips to make observations about fractions and play a fraction game.”

As an introductory activity, read (listen) the book Jump, Kangaroo, Jump by Stuart J. Murphy to your students. Look at the pictures and talk about what is on each page.

Provide graphic organizer to record information related to the questions. Student may need to be presented with vocabulary (ie, words or sentence strips, vocabulary added to augmentative device) of the concepts to place in their graphic organizer as the story is read.

“Before I give you a problem to solve, I would like to read a book to you. Let’s look at the cover. What do you think our book will be about?” Take student suggestions and predictions about the book. “The title of the book is Jump, Kangaroo, Jump by Stuart J. Murphy. As we read the story I want you to notice the strategies the children in the book use to solve their problems.”

Ask students questions about the book and groups of items on each page as you read. Use the completed graphic organizer to assist learner in responding to questions about the story.

Sample questions could include:

* “What did you learn from the book?”
* “What was the problem at the beginning of the story?”
* “How were fractions represented in the book?”
* “Give an example of equal sharing in the book. Explain.”
* “What happened at the end of the story?”
* Provide graphic organizer to record information related to the questions
* Student may need to be presented with vocabulary (ie, words or sentence strips, vocab added to aug device) of the concepts to place in their graphic organizer as the story is read to them.
* Use graphic organizer to assist learner in responding to questions about the story.

**Fraction Strips Activity:**

Make copies of the color fraction strips page provided ([3-4-3\_Color Fraction Strips.doc](http://websites.pdesas.org/mwitkowski/2009/12/3/813/file.aspx)). Have students cut the fractions apart. The only fraction strip that should not be cut is the 1 whole. Instruct students to write their initials on the backs of the fraction strips so they will be able to keep them for further lessons.

* For those learners with motor challenges, you may need to pre-cut the strips and provide adaptations for writing their names/initials (stamp, pre-written, tracing, etc)

“Each of us has made our own set of fraction strips. We will be using the fraction strips throughout the year. I’m going to give you a few minutes to explore your fraction strips. If you wish, you and a neighbor can put your pieces together and explore the fraction strips. I will ask you to stop in a few minutes so we can regroup and discuss your observations.”

You may want to let students explore for about 10 to 15 minutes. Then allow students to share observations they made while working with the fraction strips.

* Instructor may initially model for the learner different ways to explore strips before checking in with the rest of the class

“Write down some observations you made in your math journal. What connections did you make? What surprised you? Did you see any relationships?” Give students about five minutes to write down their observations. Some students might use the fraction strips to help them clarify their thinking while they are writing. Walk around to groups of students asking them to explain their work. Clarify any misunderstandings.

* Learner may dictate journal entry, OR draw/trace strips that illustrate the observation, OR complete ‘fill-in-the-blank’ entry, etc.

“Let’s hear some of your observations.”

“We will be using our fraction strips during the year, so I will pass out an envelope to everyone. Please write your name on the outside of the envelope and place your fraction strips inside.”

You will have opportunities to assess students while they are exploring the fraction strips and through discussions and questions. Students may need to be pulled into small groups to further clarify understanding.

Some sample questions include:

* “Are these two fractions equivalent? Explain.”
* “What do you notice about 2/3 and 4/6 ?”
* “What patterns do you notice?”
* “How are the fraction strips helping you find equivalent fractions?”

Ask students to explain their thinking. When students share their answers, it is important to emphasize the equivalence of different representations.

* Learner may create sets of equivalent fractions using their manipulatives.
* Pictures that represent the new vocabulary or concepts (ie, equivalent) are available

**Emerging Symbolic**

Students will:

**Introductory Activity:**

“Today we are going to continue our work with fractions. We will be making fraction strips. We will use the fraction strips to make observations about fractions and play a fraction game.”

As an introductory activity, read (listen) the book Jump, Kangaroo, Jump by Stuart J. Murphy to your students. Look at the pictures and talk about what is on each page.

“Before I give you a problem to solve, I would like to read a book to you. Let’s look at the cover. What do you think our book will be about?” Take student suggestions and predictions about the book. “The title of the book is Jump, Kangaroo, Jump by Stuart J. Murphy. As we read the story I want you to notice the strategies the children in the book use to solve their problems.”

Ask students questions about the book and groups of items on each page as you read. Sample questions could include:

* “What did you learn from the book?”
* “What was the problem at the beginning of the story?”
* “How were fractions represented in the book?”
* “Give an example of equal sharing in the book. Explain.”
* “What happened at the end of the story?”

As the teacher reads the book present the learner with picture representations that represent the concepts of the story (these pictures could be used to responds to questions related to the story or the lesson on equivalent fractions)…learner may be able to use the pictures to fill out a graphic organizer for the story

**Fraction Strips Activity:**

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* For those learners with motor challenges, you may need to pre-cut the strips and provide adaptations for writing their names/initials (stamp, pre-written, tracing, etc)

 “Each of us has made our own set of fraction strips. We will be using the fraction strips throughout the year. I’m going to give you a few minutes to explore your fraction strips. If you wish, you and a neighbor can put your pieces together and explore the fraction strips. I will ask you to stop in a few minutes so we can regroup and discuss your observations.”

You may want to let students explore for about 10 to 15 minutes. Then allow students to share observations they made while working with the fraction strips.

* May use manipulatives that are sturdier than paper strips (fraction bars)
* Use of templates (jig) that illustrate equivalency...Present 5 1/3rd pieces and learner needs to determine how many will fit into the whole
* Work in pairs with a peer buddy

“Write down some observations you made in your math journal. What connections did you make? What surprised you? Did you see any relationships?” Give students about five minutes to write down their observations. Some students might use the fraction strips to help them clarify their thinking while they are writing. Walk around to groups of students asking them to explain their work. Clarify any misunderstandings.

* Pasting picture representations of equivalent fractions they created
* Answer yes/no questions regarding equivalency
* Provide sentence strip choices of observation statements

“Let’s hear some of your observations.”

“We will be using our fraction strips during the year, so I will pass out an envelope to everyone. Please write your name on the outside of the envelope and place your fraction strips inside.”

You will have opportunities to assess students while they are exploring the fraction strips and through discussions and questions. Students may need to be pulled into small groups to further clarify understanding.

Some sample questions include:

* “Are these two fractions equivalent? Explain.”
* “What do you notice about 2/3 and 4/6 ?”
* “What patterns do you notice?”
* “How are the fraction strips helping you find equivalent fractions?”

Ask students to explain their thinking. When students share their answers, it is important to emphasize the equivalence of different representations.

* If using picture icons, change the text on the icon to match the targeted vocabulary (same becomes equivalent)
* Use fill-in-the-blank worksheet with icon or picture sentence strip choices that the learner will use to complete the worksheet

**Pre-Symbolic**

Students will:

**Introductory Activity:**

“Today we are going to continue our work with fractions. We will be making fraction strips. We will use the fraction strips to make observations about fractions and play a fraction game.”

As an introductory activity, read (listen) the book Jump, Kangaroo, Jump by Stuart J. Murphy to your students. Look at the pictures and talk about what is on each page.

“Before I give you a problem to solve, I would like to read a book to you. Let’s look at the cover. What do you think our book will be about?” Take student suggestions and predictions about the book. “The title of the book is Jump, Kangaroo, Jump by Stuart J. Murphy. As we read the story I want you to notice the strategies the children in the book use to solve their problems.”

Ask students questions about the book and groups of items on each page as you read. Sample questions could include:

* “What did you learn from the book?”
* “What was the problem at the beginning of the story?”
* “How were fractions represented in the book?”
* “Give an example of equal sharing in the book. Explain.”
* “What happened at the end of the story?”

Identify target vocabulary/concepts (fractions, equivalent, etc) that are in the book.

Use objects or tactile cues (½ ¼ ) paired with pictures and words (as appropriate for the specific learner) to represent the identified vocabulary/concepts…present these items when appropriate during the story

**Fraction Strips Activity:**

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“Each of us has made our own set of fraction strips. We will be using the fraction strips throughout the year. I’m going to give you a few minutes to explore your fraction strips. If you wish, you and a neighbor can put your pieces together and explore the fraction strips. I will ask you to stop in a few minutes so we can regroup and discuss your observations.”

You may want to let students explore for about 10 to 15 minutes. Then allow students to share observations they made while working with the fraction strips.

“Write down some observations you made in your math journal. What connections did you make? What surprised you? Did you see any relationships?” Give students about five minutes to write down their observations. Some students might use the fraction strips to help them clarify their thinking while they are writing. Walk around to groups of students asking them to explain their work. Clarify any misunderstandings.

* Use computer programs that allow for manipulation of fraction parts to demonstrate equivalency…single switch access
* Identify equivalent fractions using tactile cues and baskets for collecting equivalent fractions ( 1/2

 2/4 )

 “Let’s hear some of your observations.”

“We will be using our fraction strips during the year, so I will pass out an envelope to everyone. Please write your name on the outside of the envelope and place your fraction strips inside.”

You will have opportunities to assess students while they are exploring the fraction strips and through discussions and questions. Students may need to be pulled into small groups to further clarify understanding.

Some sample questions include:

* “Are these two fractions equivalent? Explain.”
* “What do you notice about 2/3 and 4/6 ?”
* “What patterns do you notice?”
* “How are the fraction strips helping you find equivalent fractions?”

Ask students to explain their thinking. When students share their answers, it is important to emphasize the equivalence of different representations.

* Use computer programs with text reader that allow for manipulation of fraction parts to demonstrate equivalency and state equivalency (e.g., ½ is equivalent to ¾)
* Use tactile cues representing same/equal/equivalent ( ) to explain thinking (e.g., )
* Use a four cell voice output device to describe equivalence . Different fractional representations can be replacedt on the device to represent equivalent and not equivalent fractions to which the student may describe.