Sample PLANNING PAGE

Standard: 6.RP.A.1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."

Mathematical Practice or Process Standards:

SFMP 2. Reason abstractly and quantitatively.

Students solve problems by analyzing and comparing ratios and unit rates in tables, equations, and graphs

SFMP 4. Model with mathematics.

Students model real-life situations with mathematics and model ratio problem situations symbolically.

SFMP 6. Attend to precision.

Students communicate precisely with others and use clear mathematical language when describing a ratio relationship between quantities.

Goal:

Students use real-world objects to compare two quantities such as the number of red candy pieces to the number of green candy pieces in the same bag (part to part) and the number of parts to a whole such as the number of red candy pieces compared to the total number of candy pieces in the entire bag (part to whole).

Planning:

Materials: plastic bags with approximately 35-40 pieces of M & M'sTM candies or 1-inch color tiles, paper and pencil to write the ratios

Sample Activity

- Give each student a bag of M & M'sTM to compare and model ratios. Divide students into partner pairs. Ask them to write a ratio comparing the number of M & M'sTM they have to the number their partner has. Students will count and compare the number of M & M'sTM each have in their own bags and then write the comparison such as $\frac{36}{40}$ or 36:40. Facilitate a discussion about how they just compared a whole to a whole.
- Next, ask students to compare the number of red M & M'sTM in their bags to the number of brown M & M'sTM. Students will count and record comparisons such as 8 red/14 brown or 8:14. Facilitate a discussion about how this ratio compares a part of one whole to another part of the same whole (part to part). Ask students to create their own part to part ratios with their M & M'sTM and record.
- Ask students to count the number of yellow M & M'sTM and compare that number to the entire number of M & M'sTM in the bag, such as 7 yellow compared to all 36 in the bag. Have students record the ratio such as $\frac{7 \text{ yellow}}{36 \text{ bag}}$ or 7:36. Facilitate a discussion leading students to reason that the ratio they just created is a part:whole ratio. This can be done by reviewing the other types of ratios created earlier in this lesson.

Sample PLANNING PAGE (Continued)

Questions/Prompts:

- Ask students to explain the comparisons of 8 red compared to 14 brown ($\frac{8}{14}\,$ and 8:14 vs. $\frac{14}{8}\,$ and 14:8).
- Ask students to compare other colors to show the relationship written as a ratio.
- Ask students to explain part-to-part versus part-to-whole ratios.

Differentiating Instruction:

Struggling Students: Some students may confuse the order of the quantities and may need to label, such as 8 red/14 brown or 14 brown/8 red. Have the students record the color order you request before they make the ratio. This will help them understand that the order matters.

Extension: Try other ratio scenarios. Direct students to look around the classroom to find the ratio of boys to the total number of students in the classroom. Have them compare the number of boys to the number of girls. Ask them to compare the number of students in their classroom to the entire sixth grade or find the ratio of sixth graders to seventh graders.

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