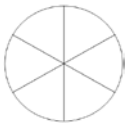
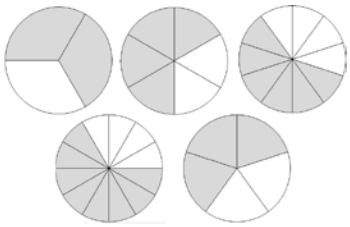
Content Standard	***MAFS.4.NF*** *Numbers and Operations – Fractions* ***MAFS.4.NF.1*** *Extend understanding of fraction equivalence and ordering.* **MAFS.4.NF.1.1** Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{(n\times a)}{(n\times b)}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
Assessment Limits	Denominators limited to: 2, 3, 4, 5, 6, 8, 10, 12, 100. For denominators of 10 and 100, focus should not be on equivalence between these 2 denominators, since this is addressed specifically in standards MAFS.4.NF.5 – 7, but should be more on equivalence between fractions with denominators of 2, 4, and 5, and fractions with denominators of 10 and 100, e.g., $\frac{1}{2}=\frac{5}{10}$, . $\frac{2}{5}=\frac{40}{100}$, etc. Refer to the same whole, including in models. Fraction models are limited to number lines, rectangles, circles, and squares. (The focus should not be on complex visual models.) Fractions $\frac{a}{b}$ can be improper fractions and students should not be guided to put fractions in lowest terms or to simplify. Equivalent fractions also include fractions $\frac{1\times a}{1\times b}$.
Calculator	No
Acceptable Response Mechanisms	Equation Response Graphic Response – Drag and Drop, Hot Spot Multiple Choice Response Multi-Select Response Natural Language Response Matching Item Response
Context	Allowable
Example	
Context	Include fractions and fractions represented by models to equivalent fractions with denominators of 8 or 12, and also may include fractions/models with denominator of 2, 3, 4, and/or 6.
Context easier	Limit fraction and fraction represented by models to equivalent fractions with denominators of 2, 3, 4, and 6.
Context more difficult	Include equivalent fractions or equivalent fractions represented by models with denominators of 5, 10, and/or 100, and also may include fractions/models with denominator of 2, 3, 4, 5, 8, and/or 12.

Sample Item Stem	Response Mechanism	Notes, Comments
Kari modeled a fraction by shading parts of the circle as shown. **Kari's Fraction Model**  Select sections to model a fraction equivalent to Kari's fraction. 	Graphic Response – Hot Spot	
Which fraction is equivalent to $\frac{2}{3}$? [Options are limited to fractions with denominators of 2, 3, 4, or 6.]	Multiple Choice Response	
Kari modeled a fraction by shading parts of the circle as shown. **Kari's Fraction Model**  Select all models that have been shaded to represent fractions equivalent to Kari's fraction. [Five equal-sized models are options, with denominators limited to 2, 3, 4, 6, 8, or 12.]	Multi-Select Response	

Which fraction is equivalent to $\frac{2}{3}$? o $\frac{4}{9}$ o $\frac{4}{6}$ o $\frac{6}{8}$ o $\frac{8}{12}$ o $\frac{3}{4}$	Multi-Select Response	
Kari modeled a fraction by shading parts of the circle as shown. **Kari's Fraction Model**  Select all the models that have been shaded to represent fractions equivalent to Kari's fraction. 	Graphic Response – Hot Spot	
Create two fractions that are equivalent to $\frac{2}{3}$. Enter one fraction in each response box.	Equation Response	

Kari has two fraction models, each divided into equal-sized sections. The models are shaded to represent the same fraction. Model A is divided into 8 sections, and 5 sections are shaded. Model B is divided into 12 sections. What do you know about the number of sections shaded in Model B? Explain your answer.	Natural Language Response	
Corey tried to find a fraction equivalent to $\frac{3}{5}$. His work is shown. $$\frac{3}{5} = \frac{3}{5} \times \frac{1}{2} = \frac{3}{10}$$ Which statement describes Corey's error? A. He incorrectly multiplied $\frac{3}{5}$ and $\frac{1}{2}$. B. It is impossible to find a fraction equivalent to $\frac{3}{5}$. C. He should have divided by $\frac{1}{2}$. D. He did not multiply $\frac{3}{5}$ by a fraction equal to 1.	Multiple Choice Response	