**Fraction Card Games**

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| The following lesson provides three different card games that focus on the fraction equivalence and comparisons. These games may be used to practice or reinforce skills within stations or with a large or small group of students.  |

**NC Mathematics Standards:**

**Number and Operations – Fractions**

**NC.4.NF.1** Explain why a fraction is equivalent to another fraction by using area and length fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.

**NC.4.NF.2** Compare two fractions with different numerators and different denominators, using the denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions by:

* Reasoning about their size and using area and length models.
* Using benchmark fractions 0, ½, and a whole.
* Comparing common numerators or common denominators.

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###### **Standards for Mathematical Practice:**

2. Reason abstractly and quantitatively.

3. Construct viable arguments and critique the reasoning of others.

6. Attend to precision.

7. Look for and make use of structure.

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###### **Student Outcomes:**

* I can compare two fractions with different numerators and/or denominators.
* I can recognize and explain equivalent fractions.

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###### **Materials:**

* Fraction Card sets (1 set per pair)
* Copies of the Recording Sheets

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###### **Advance Preparation**:

* Create Fraction Cards sets on cardstock (at least one set of cards per pair of students).
* Make copies of the recording sheets (1 per pair or 1 per student).
* Consider how you will group students.

###### **Directions:**

Game 1: Equivalence Concentration (2 students)

* Deal cards face down in five rows.
* Players take turns turning over two cards at a time.
* Using the student response sheet, students must prove whether the two fractions are equivalent or not. They can draw a picture, generate an equation, model with manipulatives such as fraction tiles, or use other ways to justify their answers.
* If the fractions are equivalent, the student keeps the pair of cards (equals one point).
* The opposing student (Partner 2) can challenge Partner 1’s answer. If partner 1’s answer is proven correct, then partner 1 gets an extra turn. If the challenge from Partner 2 is proven correct, then Partner 2 (the challenger) gets an extra point.
* The winner is the person with the most pairs or points at the end of the game.

Game 2: Fraction Go Fish (2-3 students)

* The object of this game is to get rid of your hand of cards first.
* Deal five cards to each player. Stack the rest of the cards in the middle of the table.
* At each turn, a player asks others in the group for a certain equivalent fraction. A student may say, “Does anyone have a fraction equivalent to one-fourth?”
* If another player does have an equivalent fraction, they give it to the student that requested it. The group should confirm that the pair of fractions is equivalent. If correct, the student places the matching pair in front of them.
* As long as someone gives the player a card that makes an equivalent match, the player takes another turn.
* When no one has an equivalent fraction to give the player, the person “goes fishing” by drawing from the deck in the middle of the table.
* At the end of game, the player who goes out first with no cards left in their hand wins.

 \*This forces students to want to be able to give their cards away. Therefore, students need to understand the relationship between the two equivalent fractions in order to be able to give away their fraction cards. Encourage students to justify how they determined the fractions were equivalent.

Game 3: Fraction War (2 students)

* Cards are divided between two players.
* Each player lays down 1 card.
* Players decide which fraction is greatest. Players may compare common numerators or common denominators, compare to a benchmark fraction such as 0, ½, 1, or use manipulatives or an area or length models to justify their reasoning.
* The player with the largest fraction picks up both cards.
* If fractions are equivalent, players lay down a second card and compare. The player with the largest fraction wins all 4 cards.
* At the end of the game, the player with the most cards wins.

\*Alternative: Player with the smallest fraction takes the cards.

###### **Questions to Pose:**

As students are playing games:

* What strategies are you going to use to figure out the value of the fraction?
* How might drawing a picture be helpful?
* Give me an example of a fraction that is less than…greater than… equivalent to…
* Describe the method you used to compare the fractions. Explain why it works.
* Is your fraction close to a benchmark fraction? How can you tell? What is the benchmark fraction you used?

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###### **Possible Misconceptions/Suggestions:**

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| **Possible Misconceptions** | **Suggestions** |
| * Students have difficulty seeing equivalent fractions.
* Students do not use benchmark fractions when comparing fractions.
 | * Students work with models such as pattern blocks, fraction strips, fraction circles, or number lines to explore equivalent fractions. For example, the pattern blocks demonstrate that 1 blue parallelogram is 1/3 and 2 triangles are 1/3 of a hexagon.
* As you circulate to monitor student understanding, ask: Is your fraction close to a benchmark number? How can you tell? Encourage students to use a number line to justify their reasoning.
* Give student a paper strip or sentence strip. Student folds the length of paper in half and then fourths. Student labels strips with 0, ½, 1. Have the student place various fractions on the paper strip and discuss the fraction’s relationship to the benchmark fractions.
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**Special Notes:**

* Games need to be played multiple times. Classroom discussions after students play games are extremely important. These discussions help students learn and compare various strategies for efficiently comparing fractions and for finding equivalent fractions.

**Equivalence Concentration Recording Sheet**

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| --- | --- | --- | --- |
| **Player’s Name** | **Comparison Equation** | **Challenged?** | **Points** |
| Ex. Stephanie | $\frac{1}{4}$ < $\frac{2}{3}$ | Yes or No | 1 |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
|  |  | Yes or No |  |
| **Total Points** |  |

**Fraction War Recording Sheet**

|  |  |  |  |
| --- | --- | --- | --- |
| **Rounds** | **Player 1:****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Player 2:****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Comparison Equation** |
| **Player 1’s Fraction** | **Player 2’s Fraction** |
| **Round 1** |  |  |  |
| **Round 2** |  |  |  |
| **Round 3** |  |  |  |
| **Round 4** |  |  |  |
| **Round 5** |  |  |  |
| **Round 6** |  |  |  |
| **Round 7** |  |  |  |
| **Round 8** |  |  |  |
| **Round 9** |  |  |  |
| **Round 10** |  |  |  |

**Fraction Cards**

|  |  |  |
| --- | --- | --- |
| $$\frac{1}{2}$$ | $$\frac{2}{2}$$ | $$\frac{1}{3}$$ |
| $$\frac{2}{3}$$ | $$\frac{3}{3}$$ | $$\frac{1}{4}$$ |

|  |  |  |
| --- | --- | --- |
| $$\frac{2}{4}$$ | $$\frac{3}{4}$$ | $$\frac{4}{4}$$ |
| $$\frac{1}{5}$$ | $$\frac{2}{5}$$ | $$\frac{3}{5}$$ |

|  |  |  |
| --- | --- | --- |
| $$\frac{4}{5}$$ | $$\frac{5}{5}$$ | $$\frac{1}{6}$$ |
| $$\frac{2}{6}$$ | $$\frac{3}{6}$$ | $$\frac{4}{6}$$ |

|  |  |  |
| --- | --- | --- |
| $$\frac{5}{6}$$ | $$\frac{6}{6}$$ | $$\frac{1}{8}$$ |
| $$\frac{2}{8}$$ | $$\frac{3}{8}$$ | $$\frac{4}{8}$$ |

|  |  |  |
| --- | --- | --- |
| $$\frac{5}{8}$$ | $$\frac{6}{8}$$ | $$\frac{7}{8}$$ |
| $$\frac{8}{8}$$ | $$\frac{1}{10}$$ | $$\frac{2}{10}$$ |

|  |  |  |
| --- | --- | --- |
| $$\frac{3}{10}$$ | $$\frac{4}{10}$$ | $$\frac{5}{10}$$ |
| $$\frac{6}{10}$$ | $$\frac{7}{10}$$ | $$\frac{8}{10}$$ |

|  |  |  |
| --- | --- | --- |
| $$\frac{9}{10}$$ | $$\frac{10}{10}$$ | $$\frac{1}{12}$$ |
| $$\frac{2}{12}$$ | $$\frac{3}{12}$$ | $$\frac{4}{12}$$ |

|  |  |  |
| --- | --- | --- |
| $$\frac{5}{12}$$ | $$\frac{6}{12}$$ | $$\frac{7}{12}$$ |
| $$\frac{8}{12}$$ | $$\frac{9}{12}$$ | $$\frac{10}{12}$$ |

|  |  |  |
| --- | --- | --- |
| $$\frac{11}{12}$$ | $$\frac{12}{12}$$ |  |