**Excellent Equivalents: Fractions, Decimals, and Percent - Build Math Minds (These games use fractions, decimals & percents that are most commonly used.)**

**Materials:**

1 - Using the table below, make cards – 39 in total. I recommend cutting out bristle board or other strong card stock, and writing the numbers on the cards. You will need one set of cards for each group of 3 players. **Printable cards are available at** [**www.myPITA.ca**](http://www.myPITA.ca)**, in the Math Resources section.**

2 - Print a copy of the Excellent Equivalents Code Sheet for the (Optional) Game Monitor to use as a reference.

**Game 1: Concentration – a game for 2 or 3 players (+ an optional monitor, when just beginning, to check the pairs found)**

Use one set of cards but remove one of the types – i.e. all the fractions. You are playing with only 26 cards arranged upside down in front of you, in a rectangle formation so players can remember where their turned-over cards were. Then you play the game as Concentration. Each player turns over two cards at a time, looking for an equivalent pair. (For example, a pair would be 0.5 and 50% if you have removed the fractions.) When a player finds a pair, they keep it in their pile of pairs.

When they turn over two cards that are not pairs, it is the other player’s turn.

If the player does not recognize they have turned over a pair, the play continues with the next player. The person with the most pairs when all have been paired is the winner. Using different types of cards for a game can increase game difficulty: i.e. Fractions and Percents.

**Alternate Game: Go fish – using 2 types of cards. i.e. Decimals and Percents**

**Game 2: Three of a Kind Concentration – a game for 2 or 3 players (+ an optional Game Monitor, when just beginning, to check for correct pairs found)**

The added challenge of this game is that all (39) cards are in use and all players know that there are actually three equivalencies. Lay out the cards upside down as in Concentration, and each player turns over 2 cards in the same way. If he/she turns over a two-card pair, that pair is piled one on top of the other and placed in front of that player, face up, so other players can see the top card.

If a player turns over a card that belongs to the set of someone else’s already claimed pair of cards (or his/her **own** pair of cards), the first player to call out “SET” and to immediately correctly identify to which pair it belongs, gets to claim the whole group of three cards, a **SET,** as his/her own. In the case of a tie in making the “SET” call, whichever of those players picks up the card first and correctly places it on the pair, wins. If nobody recognizes that a card belongs to a pair already claimed, the play continues to the next person as usual.

The game ends when all of the sets are identified. The player with the most sets wins.

**VARIATION**: Make up about 6 **wild cards** that do not belong to the sets, as an added challenge. Add them to the pile of 39 cards used to play Game 2.

This will make the end of the game more exciting, as there will be turned over cards that do **not** belong to any of the already claimed pairs. Examples: **0.30, 6/10, 90%, 12%, 1/6, 0.15**

**Getting Students Into Groups – Using Math Equivalents (this activity can also be used to group students for playing the games above)**

We are always looking for active and novel ways to group, and re-group students. This is a Math method. There are 39 cards in total; 13 sets each consisting of an equivalent fraction, decimal, and percent. Hopefully, your class isn’t that big – so you can remove sets to give cards equal to the number of students in your class. Each student receives only one card. When you say, “Go” they mingle around the room with their hand raised in the air, seeking the students who match their equivalency – that is, when ½, 50%, and 0.5 have found each other, a group has been formed. At this point they slap hands, put their hands down, and wait as a group of 3 for more direction to whatever group activity you have in mind.

But, what if the number of students in your room is not divisible by 3? Imagine you have 26. That gives 8 groups of three, for a total of 24 cards – so start by sorting your 8 groups of three. You have 2 students left to accommodate. Remove one card from another set, so the last two students can find each other. Usually, if you have just one more student than is evenly divisible by 3, you can ask two students to work together with one card, resulting in one group of 4!

Voila! Another way of getting students into groups, and of infusing awareness of math equivalencies at the same time.

Equivalent ***FRACTIONS, DECIMALS, AND PERCENTS*** for the games are listed here for reference:

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| **1****1** | **1.0** | **100%** |
| **4****5** | **0.8** | **80%** |
| **3****4** | **0.75** | **75%** |
| **2****3** | **0.66…** |  **66.6…%** |
| **5****8** | **0.625** | **62.5%** |
| **1****2** | **0.5** | **50%** |
| **2****5** | **0.4** | **40%** |
| **3****8** | **0.375** | **37.5%** |
| **1****3** | **0.33…** | **33.3…%** |
| **1****4** | **0.25** |  **25%** |
| **1****5** | **0.2** | **20%** |
| **1****8** | **0.125** | **12.5%** |
| **1****10** | **0.1** | **10%** |

 | **Wild Cards** **for Game 2:****0.30****6/10****90%****12%****1/6****0.15** |