

## **Building Mathematical Thinkers: Mini-Activities**

### *Sort It Out*

**Objective:** 4th grade Algebra – Prime, Composite, Factors, and Multiples

**Theoretical Foundation:** This venn diagram activity allows students to practice several concepts at once while making connections about how the concepts are related. Fourth graders often struggle understanding how Venn diagrams work so this activity provides extra practice with this concept and allows advanced students to move on to triple Venns. Students also practice using verbal reasoning to make decisions with their partner.

**Estimated Time:** 20 minutes

**Materials:** Copies of Number Cards for each pair of students; Venn diagrams: Plastic venn circles, pieces of string, or 11x17 paper drawings

#### **Directions:**

1. Choose 2 of the Venn labels to use. Variations include the class voting on 2 labels, each pair of students choosing 2 labels so that every pair is doing something different, or the teacher choosing 2 labels.
2. Students should place (not glue) the labels so that one identifies each circle.
3. Together with their partner students should place each of the number cards in the proper place in the Venn diagram.
4. Circulate, check student work, and ask probing questions.

#### **Differentiation Suggestions:**

The best way to do this activity is to allow the partners to choose 2 labels and sort. Then have the teacher check student work/ask probing questions, then have the partners choose 2 new labels and sort again. In this way the students differentiate the activity on their own. Advanced students will be able to complete more Venns and many will try to challenge themselves. Struggling students will need more time and will work with the easier combinations.

- Another way to challenge students is to have them use a triple venn diagram with 3 labels.

#### **Probing Questions:**

- Why did you place this number here?
- Why can't this number go in this section?
- How did you know that this number goes outside the Venn?  
Can you think of another number that would go in this section?

#### **Assessment:**

- How independently and accurately do students sort the numbers?
- Do students appear to be more comfortable with some concepts? (for instance, they might be more comfortable with factors & multiples than prime & composite)
- How do students justify their choices?

**Venn Diagram Labels**

Prime	Composite	Multiples of 2	Multiples of 5
Multiples of 3	Factors of 36	Factors of 40	Factors of 12

**Venn Diagram Numbers for Sorting**

1	2	3	4	5	6	7	8
9	10	11	12	20	21	22	23
24	25	27	30	36	40	45	48