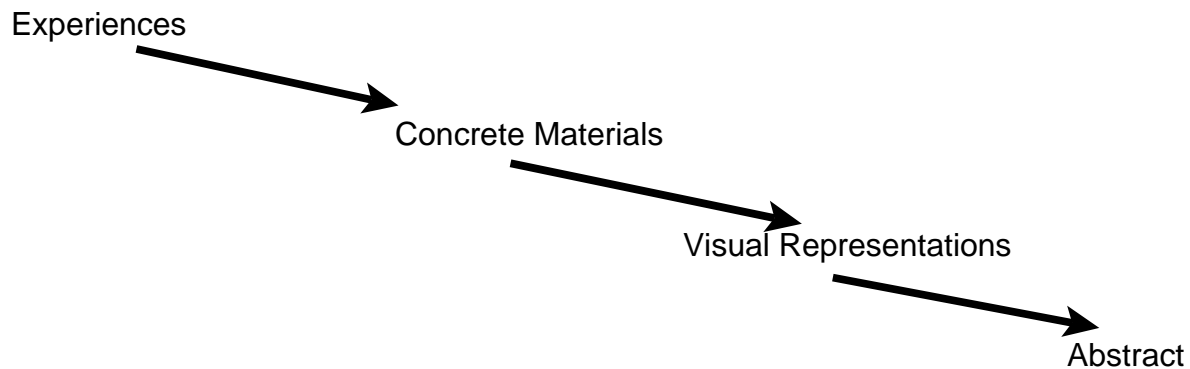


Part Part Whole Exploration

Students need to explore each number, 4-10, in a variety of ways with a variety of materials.

The 'Road to Abstraction' takes students through world experiences, to concrete materials, visual (and other) representations, before expecting abstract representations.



The following activities help students explore the part part whole relationship. We want to remove the materials from their sight, forcing them to construct mental representations.

1. **Finger PPW**

Have students work in pairs. Student A puts their hands behind their back. Student B takes some of student A's fingers in each hand so the total is 5 fingers. For example, they hold 3 fingers of student A's left hand and 2 fingers of student A's right hand. *Without looking*, student A calls out the two parts of 5 that are demonstrated. They can be asked to say:

- 3 fingers and 2 fingers

- 3 and 2 make 5

- $3 + 2 = 5$

As they move to abstraction.

2. **Aural Representations**

Have the class close their eyes. Take 5 beads or glass blobs and drop some into a jar or tin pan. How many were dropped? How many more need to be dropped to make 5?

3. Have students work in pairs. Student A puts their hands behind their back. Student B takes 5 beads, glass blobs, or other counters and places some into each of student A's hands.

Without looking, student A calls out the two parts of 5 that are demonstrated. They can be asked to say:

- 3 beads and 2 beads

- 3 and 2 make 5

- $3 + 2 = 5$

As they move to abstraction.

They can then demonstrate the joining by bringing their hands forward and saying three beads (showing left hand) and 2 beads (showing right hand) make 5 beads (joining hands together).

They can also be asked to show the commutative (flip flop) property by showing their beads as above, then doing the same thing with right hand first, reaching the same total.

4. **Bunny Ears**

This activity requires students to construct their own mental and physical constructs, as compared to the first three activities where the teacher or another student supply the construct and the student tries to visualize it. For this reason, it will be difficult for JK students or early in the year.

The teacher supplies a number, which can be orally, by a number cards, subitizing cards, 5 or 10 frame, etc.

Students split that number into two parts on their hands, but hold their hands beside or on top of their heads. For example, if 6 is called, a student can hold 4 fingers up on hand and 2 on the other.

Removing their hands from their sight line requires them to make a mental construct of the number.