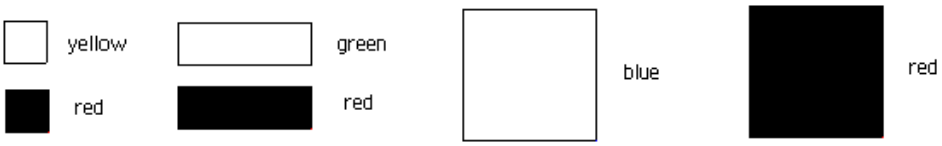
Introduction to Subtraction with Algebra Tiles - Part I



Building upon the lesson on zero pairs the students will observe the following on the overhead projector.

Subtraction will be modeled by first placing some tiles on the table and then *removing* tiles from the table. The *removing* of the tiles is the modeling of subtraction. (Remember adding was placing more tiles on the table.)

- Place 3 yellow tiles and then remove 1 yellow tile. How many yellow tiles are left? (1)
- Place 5 yellow tiles and then remove 3 yellow tiles. How many yellow tiles are left? (2)
- Place 6 red tiles and then remove 3 red tiles. How many red tiles are left? (3)
- Place 5 red tiles and then remove 4 red tiles. How many red tiles are left? (1)

Have students model this with the *Yellow-Red Unit Square Template* in their communicator. Demonstrate this procedure with the students.

- Show 4 yellow tiles. Remove 1 yellow tile by erasing the yellow tiles. How many yellow tiles left?
- Show 5 red tiles. Remove 3 red tiles by erasing the 3 red tiles. How many red tiles left? (2)

Have students complete *Subtracting Integers Using Models 1* using the *Yellow-Red Unit Square Template*

So far these problems have been easy because you never are trying to remove more than number of tiles that are on the table or trying to remove an opposite color. Let's try some of those.

Take out all the small unit squares from the algebra tiles.

Place 5 red tiles on the communicator. I would like to remove 3 yellow. First let's add some zero pairs to the table. Add three zero pairs and ask students if this is still equal to 5 red tiles (or if the value has changed)? Ask students to remove three yellow tiles.
What is the answer? (8 red tiles)

Place 3 red tiles on the communicator. I would like to remove 2 yellow. First let's add some zero pairs to the table. Add two zero pairs and ask students if this is still equal to 3 red tiles (or if the value has changed)? Ask students to remove two yellow tiles.
What is the answer? (5 red tiles)

Place 4 red tiles on the communicator. I would like to remove 6 yellow. First let's add some zero pairs to the table. Add six zero pairs and ask students if this is still equal to 4 red tiles (or if the value has changed)? Ask students to remove six yellow tiles.
What is the answer? (10 red tiles)

Place 2 yellow tiles on the communicator. I would like to remove 5 red tiles. First let's add some zero pairs to the table. Add five zero pairs and ask students if this is still equal to 2 yellow tiles (or if the value has changed)? Ask students to remove five red tiles. What is the answer? (7 yellow tiles)

Place 4 yellow tiles on the communicator. I would like to remove 3 red tiles. First let's add some zero pairs to the table. Add three zero pairs and ask students if this is still equal to 4 yellow tiles (or if the value has changed)? Ask students to remove three red tiles. What is the answer? (7 yellow tiles)

Have students model this with the *Yellow-Red Unit Square Template* in their communicator.

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Show 4 yellow squares. Remove 1 red square.
Show 3 red squares. Remove 2 yellow squares.

Have students complete *Subtracting Integers Using Models II* using the *Yellow-Red Unit Square Template* Ask students to make an observation about the what they see happening with the tiles when they are trying to remove the opposite color from the table.

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