**Goals**:

- Use Base 10 blocks to represent whole numbers and decimal numbers

**Prerequisite Knowledge**:

- Understand place values

**Lesson Materials:**

- Base 10 Blocks

**Lesson Breakdown:**

| Activity | Size of Group | Time in Activity<br>Total Time: 60-70minutes |
|---|---|---|
| Homework questions, collection and attendance | Whole class | 5 minutes |
| Form groups of 2 students and distribute the Base 10 Blocks | Groups of 2 | 5 minutes |
| Pose the problem "Represent 125 using the Base 10 blocks" | Groups of 2 then whole class | 10 minutes |
| Pose the question "What would be the next bigger and next smaller shape?". | Groups of 2, then whole class | 5-10 minutes |
| Pose the problem "Represent 21.6 using the 4 types of Base 10 blocks that we have access to." | Groups of 2, then whole class | 10 minutes |
| Post problems on the board and have groups post answers | Groups of 2, then whole class | 10-15 minutes |
| Connecting Base 10 blocks to the number line | Whole class | 5 minutes |
| Connecting Base 10 blocks to comparing numbers (<,>) | Whole class | 5 minutes |
| Connecting Base 10 blocks to adding and subtracting positive numbers. | Whole class | 5 minutes |

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1. Homework questions, homework collection, attendance.
2. Form groups of 2 students and distribute the Base 10 blocks
3. Pose the problem "Represent 125 using Base 10 blocks"

   Watch for the following representation within the groups.



OR        125 - ■        OR      12 -    and 5 - ■
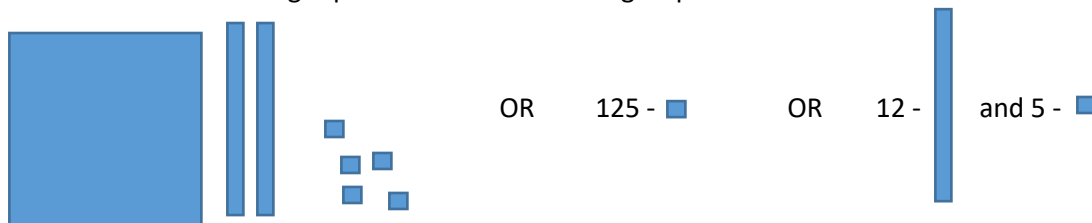
If groups are using 125 small cubes tell them they are correct but to try and do it with the least number of blocks.  Some may use more than 10 rods.  That's still correct but we want the least number of blocks possible.  When all groups have it ready to go bring them back together and discuss the results.  Stress the most important part of the solution is naming the Unit (whole).  That will become more evident as we proceed to other problems.  Have various ways posted on the board for discussion.


4. Pose the question "You see our 3 shapes, what would be the next bigger shape and the next smaller shape?".  Walk around and see what they are discussing.  See if anyone can come up with the big cube (10 flats glued together) or a small flat (created by slicing the small cube 10 times).  If they are not getting anywhere after some time then comment that maybe if they "glue together" some blocks that would help come up with something.  That or say they can join with another group to get enough of a shape to show the next one.  Look for someone to take 10 flats and combine them to make the big cube.  Bring out the big cube to show them.  Discuss how next would be a rod built of 10 of those and then a flat and then another even bigger cube.  Same goes when getting smaller.


5. Post the problem, represent 21.6 using the 4 types of Base 10 blocks that we have access to.  Work in pairs.  Walk around the room and see what examples they come up with.  Have the students post the different possible answers.  Watch the unit designation.  Try to get both possible answers posted.  One using the flat as the unit and one using the rod as the unit.


6.  Post the numbers 1.007, 1.234, 1.07, 2.45, 0.421 on the board giving ample room for groups to post answers.  Assign one problem to each group.  Some problems will be completed by more than one group.  Walk around

the room making sure they denote the unit.  Have groups post answers and discuss.  Make sure to identify the ones that can be completed multiple ways.  How is that possible?  Discuss the unit.

7. Draw a rod on the board then redraw it tipped over.  Ask if it reminds them of anything.  If no, erase the bottom half of the rod.  Most likely someone will say number line.  Make the connection between Base 10 blocks and number lines.  Discuss spacing, short tick marks and long tick marks.  Remind the students that 0 must me a long tick mark on every number line.  It doesn't need to be present but all long tick marks must lead to 0.

8.  Discuss the connection between Base 10 blocks and comparing numbers.  Actual comparing will be taught in a different lesson.  Make sure to stress the unit must be the same and physical objects can help compare numbers.  Ask how Base 10 Blocks could be used to compare numbers.  UNIT!!!

9.  Discuss the connection between Base 10 blocks and addition and subtraction of numbers.  A later lesson will show the process of adding and subtracting numbers using Base 10 blocks.  Again make sure to stress that it is all about the unit.

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1.  Homework questions, homework collection, attendance

2.  Form groups of 2 students and distribute the Base 10 blocks


3.  Represent 125 using Base 10 blocks


4.  You see our 3 shapes, what would be the next bigger shape and the next smaller shape?

5.  Represent 21.6 using the 4 types of Base 10 blocks that we have access to.

6.  Post 1.007, 1.234, 1.07, 2.45, 0.421 on the board and assign one problem to each groups.

My group is assigned to do:

7.  Connection to …..

8.  Connection to …..

9.  Connection to …..