



Use Multisensory Approaches

SORTING NUMBERS

This is a hands-on activity in which students categorize numbers (positive/negative) to reinforce their understanding of vocabulary. Teachers working with older students can utilize this same activity as students learn more of the real number system, including rational or irrational numbers, or even the complex number system.

STEP 1: CREATE CARDS.

- Prepare a set of cards with the numbers you would like students to interact with.

STEP 2: HAND OUT CARDS AND GIVE DIRECTIONS.

- Give each student or pair a set of cards.
- Have students sort them into piles (either based on their understanding or specific topics that you want them to focus on).

STEP 3: REVIEW PILES/DEFINITIONS.

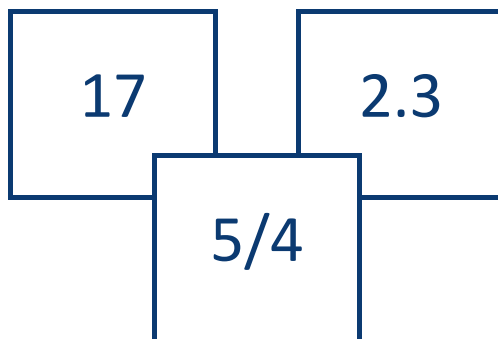
- Have students discuss what they found or give an example of one card that they put in each pile.
- Review the vocabulary related to each pile to add to students' understanding of the definitions.

EXAMPLE:

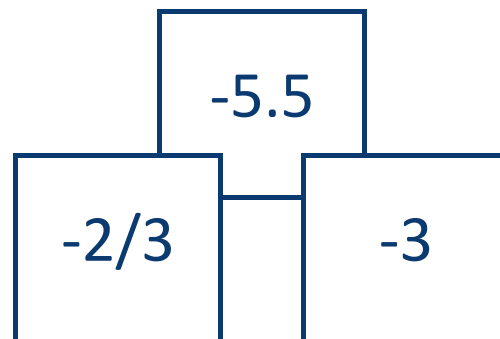
If your goal is to have students discover, ask them to sort the cards into 2 or 3 piles and see what they focus on. From that, begin your lesson and help students create definitions. If you're reviewing a concept, ask students to sort into piles based on specific vocabulary.

EXAMPLE SORT:

Positive Numbers



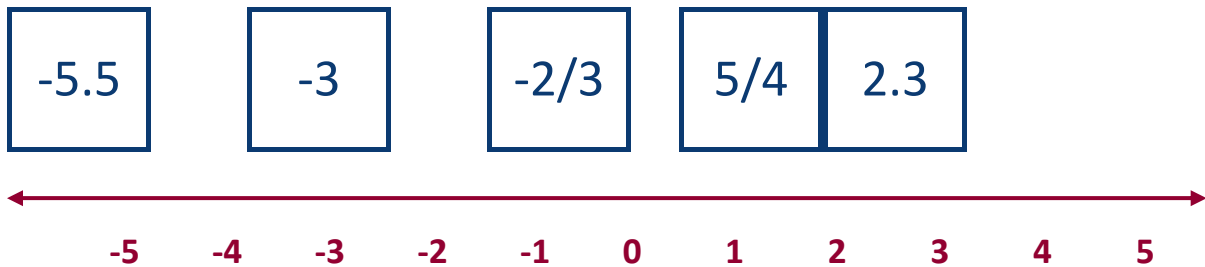
Negative Numbers





WANT TO USE THESE CARDS IN A DIFFERENT WAY?

- Have students put them in increasing or decreasing order.
- Have students play “war” with them, deciding which one is bigger.
- Have students place them on a number line.



HOW DOES THIS USE A MULTISENSORY APPROACH?

- Students physically move number cards around as they create each pile.
- Students orally discuss what they found/examples they used.
- Before/after the teacher has the opportunity to give formal notes on the board, so students can see the categories and visually process information.

Other benefits:

- Students have the opportunity to make choices about each number, and are more inclined to take a risk—giving them an opportunity to reflect on their understanding of the different categorizations of numbers. In the future, when, for example, the word “integer” is used, they have this experience to reflect on to cue their understanding of the vocabulary word.
- This activity also allows the teacher to determine the amount of instruction to give students as they discover groups of numbers or as they review and focus on previously learned concepts. The level of structure (and amount of cards each student has to sort) can be modified to promote success by each student.

Students learn in different ways, so use multisensory approaches.



SORTING ACTIVITIES¹

Sorting is a very strong skill for developing connections and, with careful planning, can be used in many ways (e.g., when studying functions, factors of polynomials, or slope). Sorting allows students to interact with a larger number of problems and develop connections between problems. Because the students are not actually completing the problems, you can use “ugly numbers” (decimals/fractions) to emphasize that numbers are just numbers – using desensitization in our favor.

SUCCESSFUL STEPS:

STEP 1: PLAN. - THINK ABOUT YOUR AUDIENCE.

- How will they best interact with the activity?
- Is there anyone you are concerned about not working well with the activity? Anyone who might be lost, overwhelmed, bossy, etc.?
- Will you do the activity as a full class or small group? Will you pick the groups or let them?
- How much or how little instruction will you give them?

STEP 2: INTRODUCE. - LAY OUT THE EXPECTATIONS.

- What is the goal?
- You want to hear conversations in the groups. It is okay for them to politely disagree with each other.
- There may be many “right” ways to do the task.
- Is the time frame task completion or a limited time?
- What do they do when they are done?
- Remember you can individualize these rules.

STEP 3: LET GO. - LET THE TASK HAPPEN.

- It may not be pretty at first—it is okay for them to be stumped for a little bit.
- Walk around and ask questions of the different groups.
- DO NOT inject how you would do it in any group—if a group is stumped, ask questions to get them to think about the task, visit another group and come back to make sure they are moving forward. If not, ask another question and repeat.
- Listen to the different conversations going on in each group, in order to have a sense of what will happen during the debrief.

STEP 4: DEBRIEF. - WHAT DID WE CONJECTURE, GENERALIZE, OR LEARN?

- Make sure to leave time for this!
- Respond to what students are saying.
- Encourage comments from each group.

STEP 5: FOLLOW-UP. - WHAT DID YOU LEARN ABOUT HOW THE GROUP/INDIVIDUALS THINK ABOUT THE CONCEPT?

¹ Courtesy of Jennifer Sauriol