

15 SCRATCH:

Assessment Instructions

Content:

- Order of operations (brackets, exponents, multiplication, division, addition, subtraction)
- Operations with integers

Competencies:

- Use reasoning and logic to explore, analyze, and apply mathematical ideas
- Demonstrate and apply mental math strategies
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Explain and justify mathematical ideas and decisions
- Reflect on mathematical thinking

You will need:

- Students arranged in partners or working on their own.
- 1 game page per player
- 1 “Strategies and Reflections” page per player
- 1 *Adaptation Game Tools* page per student

Timing?

- 5 minutes for instructions
- 10-15 minutes of solid game play
- 20 minutes for reflection

Objective:

- Players combine three numbers selected by the teacher using multiplication, division, addition, and subtraction to create as many of the numbers from 0 to 15 as possible. Exponents allowed. Assigning some of the numbers a negative value is recommended for grades 7 and 8.

How to play:

- The teacher draws three or four cards from a deck and records them on the board. Face cards can be removed ahead of time or played as the numbers 11, 12, and 13.
- For grades 7 and 8: black cards can be assigned a positive value and red cards a negative value.
- For 10-15 minutes, players work together (or on their own) to combine the three selected numbers using the operations multiplication, division, addition, and subtraction. Exponents can also be used if it makes sense.
- They must create and record equations that result in as many of the numbers from 0-15 as possible. Early finishers can choose to extend the number line to include values to -15 or +30.
- Play concludes when time is up.

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Student Printouts

15 SCRATCH → 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

CARDS DRAWN:

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(Optional)

RECORD YOUR EQUATIONS. Don't forget to think about order of operations.

EXTENSION 1: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

EXTENSION 2: -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1

NAME: _____



Give an example of an equation where using brackets changed the answer. Explain why they were needed.

Give an example of an equation with two different operations where brackets were not needed. Explain why it didn't need them.

Explain why is BEDMAS important.

What did you find helpful during the game? Explain!