

Background information for Exploding Squares

Students need to place the numbers sequentially from one through to eight on either squares. However, a number cannot be placed in a square if it is the sum of two of the numbers already in that square (e.g. 5 cannot be put in a square that already contains a 2 and a 3). Students can choose to work with a partner or by themselves. This is a task that is recommended for students in grade 1 to 3 to reinforce their addition facts.

Expected questions after watching Act 1

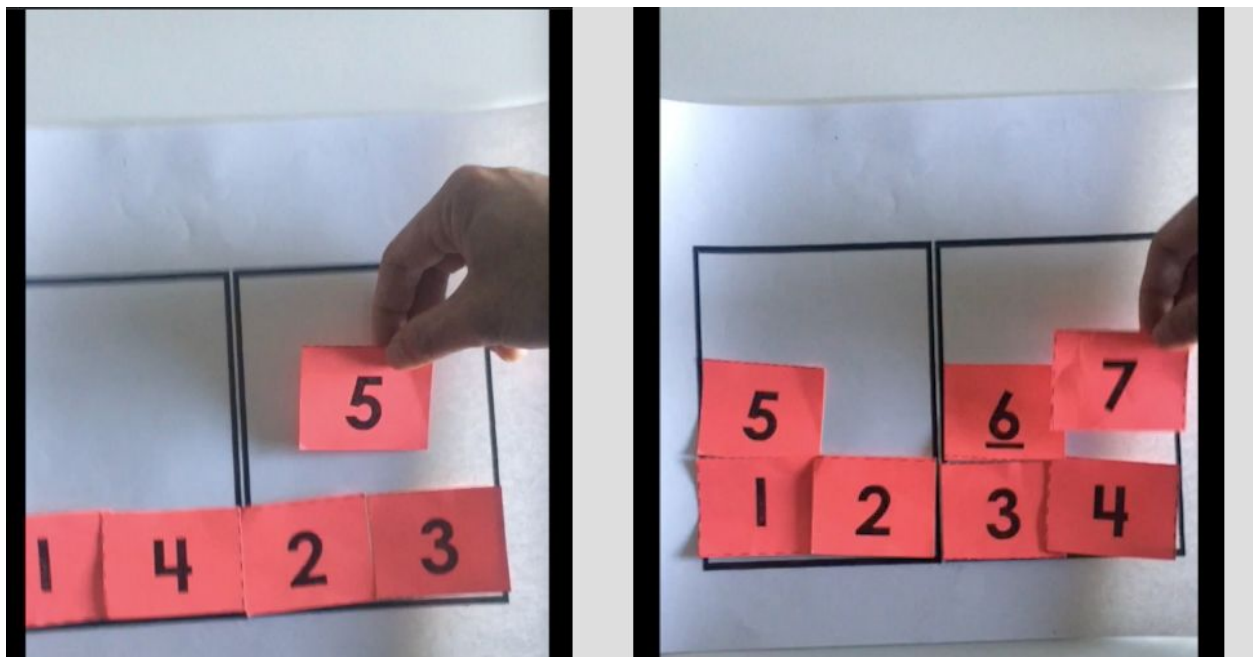
- Why did the squares explode?
- How many numbers are there to put into the squares?
- Do the numbers have to be placed in a sequential order?
- Do I have to start all over again if my squares exploded?

Expected outcome from students

Some students will be able to find the solution using 1 to 8, while others may only be able to place some of the numbers into the squares without any explosion.

Teaching sequence

1. Show students [Act 1 video](#).
2. Have students discuss and ask questions while showing them the pictures of the two trials that exploded.



3. Ultimately, during Act 2, students should come to realize why the squares exploded.
4. Students to work with partner or by themselves to try to solve the problem

5. Before revealing the solution, have students discuss as a class or in small groups what worked well and what was challenging about this task.
6. Show [Act 3 video](#).
7. To step up this task:
 - Challenge students to find alternate solution for number 1 to 8
 - Challenge students to see what is the highest number that they can go up to with two squares
 - Challenge students to see what is the highest number that they can go up to with three squares
 - Change the rule to the task to the addition of three numbers (e.g. cannot place 8 in a square where a 1, 2, and 5 exists as $1+2+5=8$)
 - As students use more numbers with their task (e.g. 1 to 20), take away the number 1 from the pile and have students place numbers into the squares sequentially from 2 to 20