



## Lesson: Permutations Composition Activity

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### OVERVIEW

This lesson will ask students to use the math concept of permutation to create a composition based on their part from A+.

### LEARNING GOALS

Students will:

- Learn about the concept of permutations.
- Compose a variation of their part from A+ using traditional musical notation.
- Reflect on what they like about a line of music.

### RESOURCES & MATERIALS

- A+ sheet music
- Band instruments
- [Permutations Composition Worksheet](#)

### PROCESS

1. Explain the steps of the lesson to students.
2. Using their sheet music for A+, students will select four of their favorite measures from their part. The measures need not be consecutive. They will then write the four measures on the worksheet. Using their instrument, students should then play those four measures as a continuous solo.
3. After writing out their four measures, explain what a permutation is: an arrangement of things in a definite order. Students will now create a new permutation of their four measures. Again, using their instrument, students should then play those four measures as a continuous solo.
4. Again, ask students to create a new permutation of their four measures and play it using their instrument.
5. Ask students to decide which their favorite of their two permutations is and to write down why. How many permutations could there be of these four measures? Answer: 24.
6. Now is the time to add dynamic and articulation markings to their favorite permutation and to think about any changes they would like to make to finish the piece.
7. Ask students to perform their favorite permutation.



Name \_\_\_\_\_

## PERMUTATIONS COMPOSITION WORKSHEET

Write your four favorite measures here:

A permutation is an arrangement of things in a definite order. Let's make a new permutation of the measures above. Change the order of four measures and write the measures in the new order here:

Let's do that again. Choose a new order and write the measures here:

**Don't forget to include a clef and a key signature!**

How many different ways could you arrange the four measures? Which of your two permutations is your favorite? Why?