

STEAM Art Activity:

Logic Puzzles (Grades 6-8)

This lesson will engage students in using their creativity to plan and make a colorful, creative puzzle. It will challenge students to use logic, precision, and perseverance to solve a friend's puzzle! This lesson is for students in grades 6-8, but can be adapted for any grade level.

 Teacher Led	 Requires Computer OR Mobile Device	 Requires Spaces
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Learning Goals

1. Students will **plan** an original puzzle.
2. Students will **create** an original puzzle.
3. Students will **solve** a puzzle.

Materials

 Student Handouts	<ul style="list-style-type: none"> • Handout [A] - Planning Page for each student (page 5)
 Technology Requirements	<ul style="list-style-type: none"> • Mobile device, tablet, or laptop • Projector or Smartboard
 Additional Materials	<ul style="list-style-type: none"> • Example puzzle pictures (page 4) • Big and small craft sticks– 10-15 for each student • Tape • Sharpies • Ruler (1 per student– optional) • Rubber bands (1 per student)

Instructions

Before the lesson

1. Explain to students that today, they will use their art skills to create their own puzzle, and then challenge a friend to solve it. They will also solve a friend's unique puzzle.
2. Show students the example puzzle pictures (page 4).
3. Discuss as a group what might make puzzles easier or more difficult to solve. For example, a puzzle with fewer craft sticks might be easier than one with more. A puzzle with 2-3 colors might be easier than a puzzle with just one color or than a puzzle with 4-6 colors. A puzzle with a clear picture might be easier to solve than one with an intricate design. Have students brainstorm and share other ways puzzles might be made easier or more difficult to solve.

During the lesson

1. Start by giving each student a copy of **Handout [A] - Planning Page** (page 5). Students may make any image or design they want to, but should be intentional about creative choices.
2. Once students have completed their puzzle plan and get it approved by the teacher, give them puzzle-making materials:
 - 10-15 craft sticks
 - To differentiate for fine motor abilities, large craft sticks are easier to draw on, while small craft sticks are more difficult and require more precision.
 - 2-3 pieces of tape to tape the craft sticks together
 - Sharpies (colors of each students' choice)
3. Have students line up their craft sticks and tape them together on the back. Allow students time to draw and create their puzzle.
 - Optional: have students number their craft sticks on the back, in case they are very difficult to solve!
4. As students finish, have them mix up their puzzle and partner up with a classmate who is also finished and exchange puzzles to solve.

After the lesson

1. If time, wrap up the lesson by asking students what skills they think they used when making and/or solving the puzzle. Some examples include precision, creativity, perseverance, pattern noticing, etc.!
2. Give students a rubber band to hold their puzzle together. Have them take it home, or keep them in the classroom for other students to solve later on!

Documenting in Spaces

Teacher Tip! The instructions for this lesson involve adding to the Class or Individual Space in Spaces. You can adapt the instructions if you'd prefer to make this an Activity.

1. Students will document their learning in Spaces by following these guidelines:
 - a. Click + Create > Choose Camera > Take a photo completed puzzle > Post Photo
 - b. Post a Description > Have students answer one or more of the following prompts:
 - i. What critical thinking skills did you use during this activity?
 - ii. Were you able to successfully solve your partner's puzzle?
 - iii. Why was problem solving and persistence important in this activity?
 - c. Click ✓ Next
 - d. Choose the Class Space or Individual Space
 - e. Click ✓ Post

Puzzle Examples



Planning Sheet

HANDOUT [A]: Planning Page

Name _____

Use the prompts and space below to plan your puzzle design. Your design can be as simple or complex as you want to make it, but make sure to be intentional with your creative choices.

I want to make my puzzle (circle one): Easy Medium Difficult

Colors I'll use: _____

Intended design or drawing summary: _____

Draw a rough draft of your design/drawing in the space below. If you'd like, you can use a ruler to section your paper into 10-15 columns or rows to replicate the craft sticks you'll use.