

Rainbow Logic Squares

Thank you for downloading the science and mathematics activity packet! Below you will find a list of contents with a brief description of each of the items. This activity packet contains all the information (including any handouts) you will need to run this activity in your own classroom or at a science festival.

Please note: some activities might require the need for a facilitator to be present to oversee the activity. Activities that require a facilitator will be clearly noted.

-Community Resources for Science



Rainbow Logic Squares

ACTIVITY PACKET CONTENTS

1. Organizer Instructions for the person running the activity
 - Print suggestion: 1 for the facilitator
 - Includes information for setup prior to the event (e.g., materials prep)
2. Participant Instructions (tabletop sign/printout)
 - Print suggestion: 1-2 to put in a plastic sign holder
3. Activity Printout(s) for participants
 - Print suggestion: number of expected participants
 - Printouts needed for participants to do the activity



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ORGANIZER INSTRUCTIONS

Grade(s): 1-5

Standard connections:

- **CCSS.Math.Practice.MP1** Make sense of problems and persevere in solving them
- **CCSS.Math.Practice.MP2** Reason abstractly and quantitatively
- **CCSS.Math.Practice.MP7** Look for and make use of structure

Next Generation Science Standards: Science and Engineering Practices

- **Developing and Using Models** Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s)

Objective: Identify the pattern of all the colors on a grid after as few questions as possible

Activity overview and background: Student-directed or adult-directed game for 2 or more players. An adult should be the leader for the first game, and thereafter, a student can lead the activity.

This activity should have a facilitator demonstrate the activity the first time

Materials:

- Colored paper squares for each player (4 each of 3 colors)
- 3x3 and 4x4 grids

Setup:

1. The leader prepares a secret grid as directed below in the Instructions
2. The secret grid must not be visible to the players
3. All players start with blank grids and their color squares in hand



Instructions

1. The leader prepares a secret 3x3 color grid, using three squares of each color (behind the screen)
2. All of the squares of the same color must be connected by at least one full side. For example, a secret grid might be:

	Column A	Column B	Column C
Row 3	Green	Yellow	Yellow
Row 2	Green	Green	Yellow
Row 1	Blue	Blue	Blue

Patterns like the ones below **ARE NOT ALLOWED**

Red		
	Red	
		Red

	Red	
		Red
	Red	

- When the leader has set up the secret grid, the guesser begins by asking for the color in any row or column
 - In our example grid, the guesser might ask, “What colors are in Row 3?”
- The leader responds by naming the colors—but *not necessarily in order*.
 - In our example, the leader might respond, “Yellow, green, yellow”
- Take time to discuss what information has been learned after each guess. The guesser uses colored markers to keep track of the clues and their possible locations—keeping in mind the rule that all squares of the same color must be connected by one full side
- The goal is for the players to be able to identify the pattern of all the colors on the grid after as few questions as possible

Rainbow Logic Squares

LEADER: 4x4 grid

Use 4 squares of 4 colors to set up your secret grid. Same colors must connect on at least one full side.

	Column A	Column B	Column C	Column D
Row 4				
Row 3				
Row 2				
Row 1				

Rainbow Logic Squares

GUESSER: 4x4 grid

Use color squares to keep track of your clues.

	Column A	Column B	Column C	Column D
Row 4				
Row 3				
Row 2				
Row 1				

Rainbow Logic Squares

LEADER: 3x3 grid

Set up your secret color grid, using three squares each of three colors. Same colors must be connected on at least one side (not just a corner).

	Column A	Column B	Column C
Row 3			
Row 2			
Row 1			

Rainbow Logic Squares

GUESSER: 3x3 grid

Use color squares to keep track of your clues. Remember, squares of the same color must be connected by at least one full side.

	Column A	Column B	Column C
Row 3			
Row 2			
Row 1			