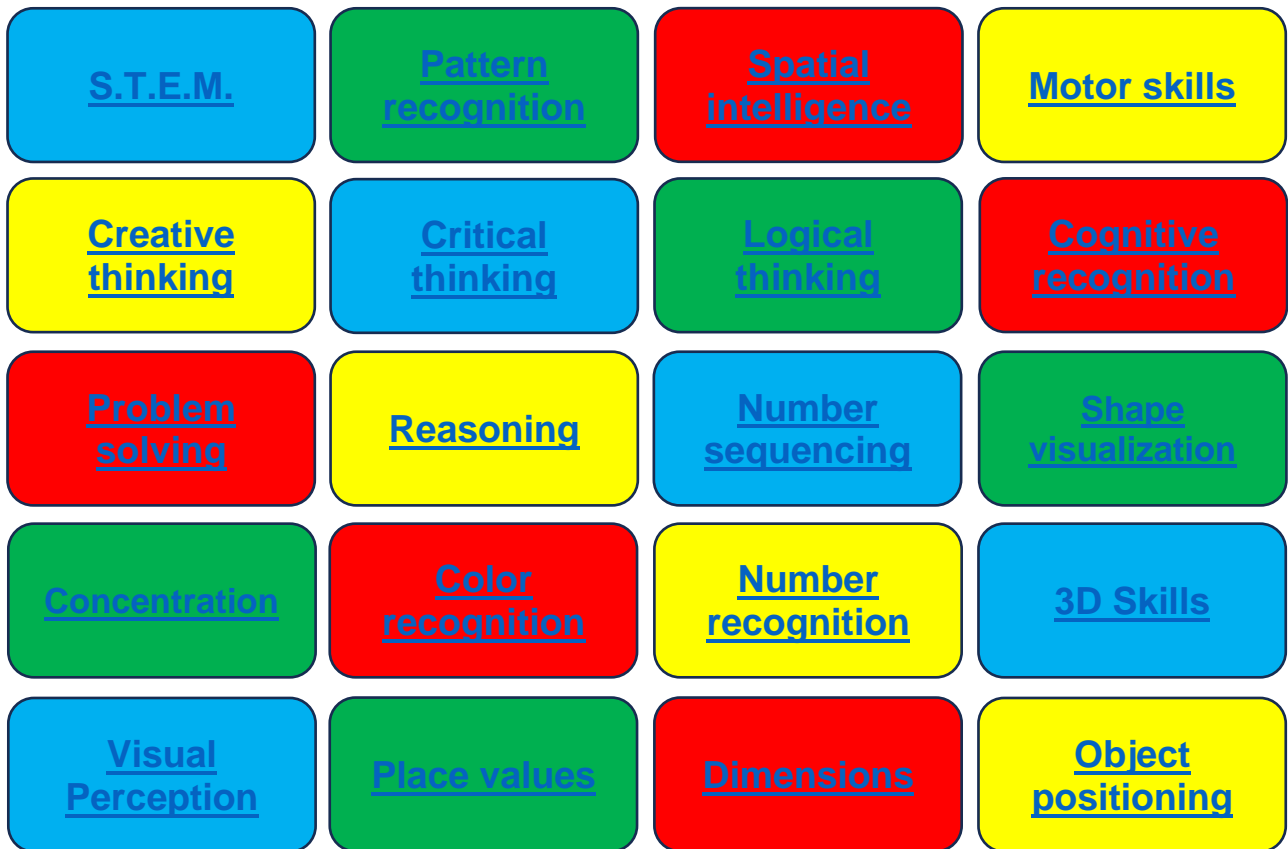


WizzleUP

Teaches:



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<u>Pre-school and Junior Elementary</u>	<u>Elementary to PhD</u>
<u>Level 1: Color patterns</u> <u>Level 2: Number patterns</u> <u>Level 3: Color and number patterns</u> <u>Level 4: Object positioning</u> <u>Level 5: Geometric shapes</u> <u>Level 6: Repeating color and number patterns</u> <u>Level 7: Growing color and number patterns</u> <u>Level 8: Make magic squares</u> <u>Level 9: Make magic squares (No colors touching)</u> <u>Level 10: Cube color patterns</u>	<u>Level 11: Make magic squares²</u> <u>Level 12: Make magic squares² (No colors touching)</u> <u>Level 13: Make magic cubes</u> <u>Level 14: Make magic cubes (no colors touching)</u>

*Developed in Canada by LinkedUpLearning. (manufactured and sold under license by WizzleED)

Level 1: Color patterns

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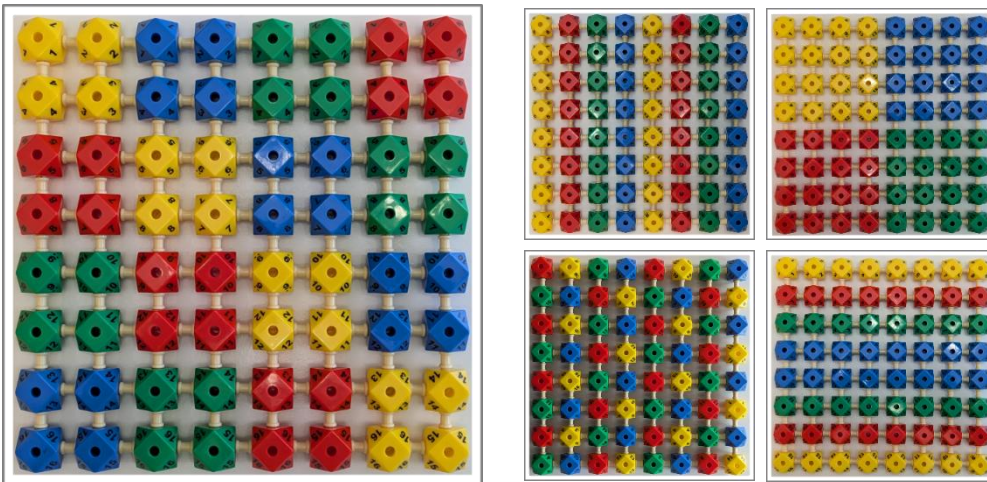
Skills Sets: [S.T.E.M.](#) | [Pattern recognition](#) | [Spatial intelligence](#) | [Motor skills](#) | [Creative thinking](#) | [Critical thinking](#) | [Logical thinking](#) | [Cognitive recognition](#) | [Problem solving](#) | [Reasoning](#) | [Number sequencing](#) | [Shape visualization](#) | [Concentration](#) | [Color recognition](#) | [Number recognition](#) | [3D Skills](#) | [Visual Perception](#) | [Place values](#) | [Dimensions](#) | [Object positioning](#) |

Teaching tool:

Use all four colors to make simple color patterns.

Emphasize: Rows or Columns or Diagonals or Squares or Rectangles and/or Random patterns.

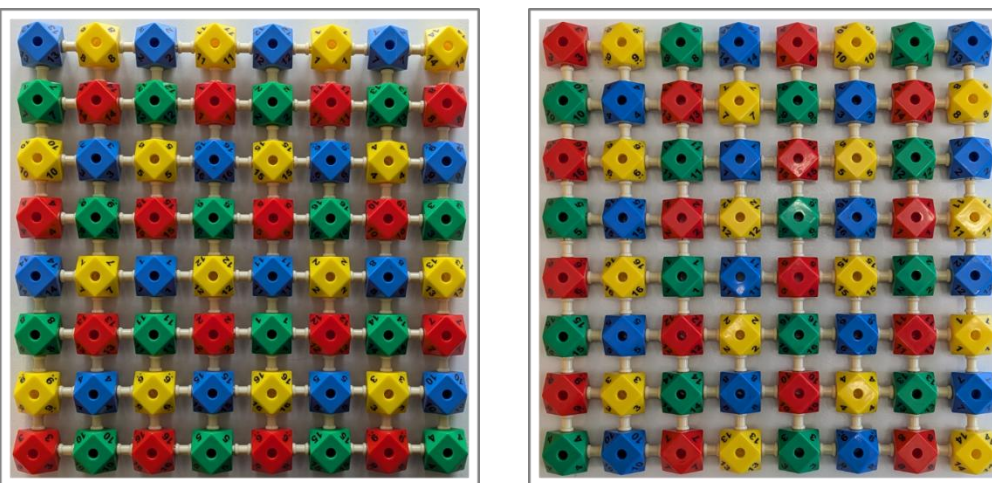
Make patterns utilizing: 4 x 4 squares; 5 x 5 squares; 6 x 6 squares; etc., 4 x 8 rectangles, 4 x 16 rectangles; etc.



Use all four colors to make simple color patterns (with no colors touching).

Emphasize: Rows or Columns or Diagonals or Squares or Rectangles and/or Random patterns.

Make patterns utilizing: 4 x 4 squares; 5 x 5 squares; 6 x 6 squares; etc., 4 x 8 rectangles, 4 x 16 rectangles; etc. (with no colors touching)



Level 2: Number patterns

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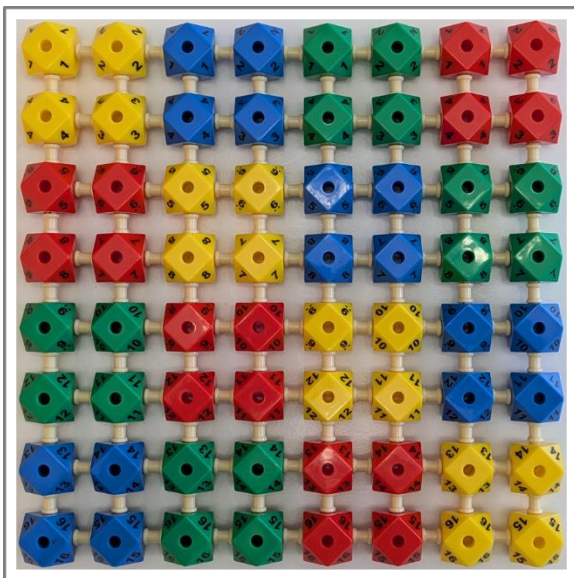
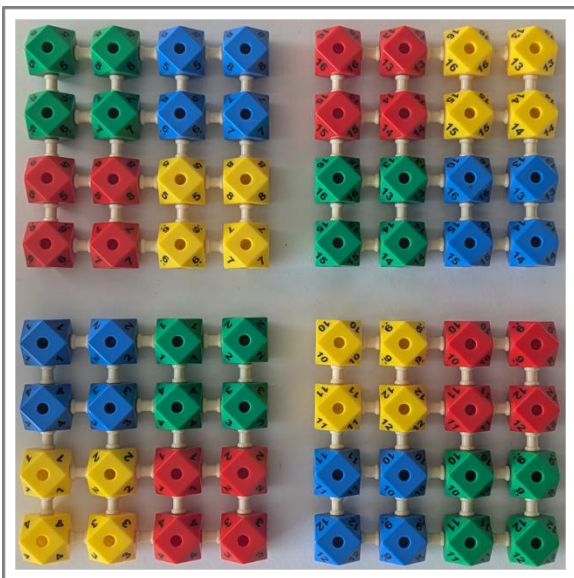
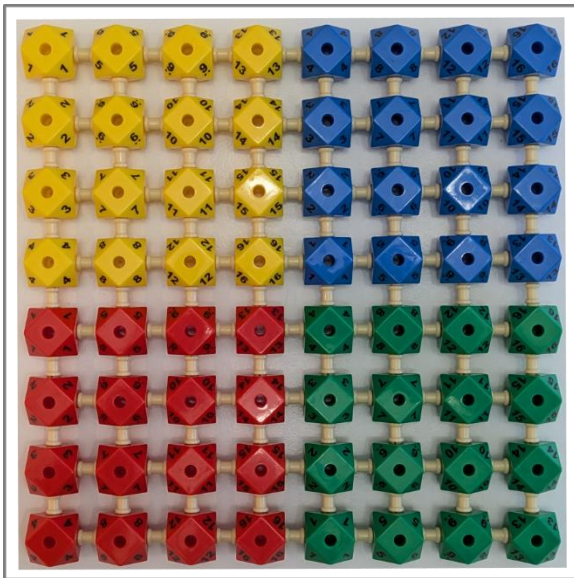
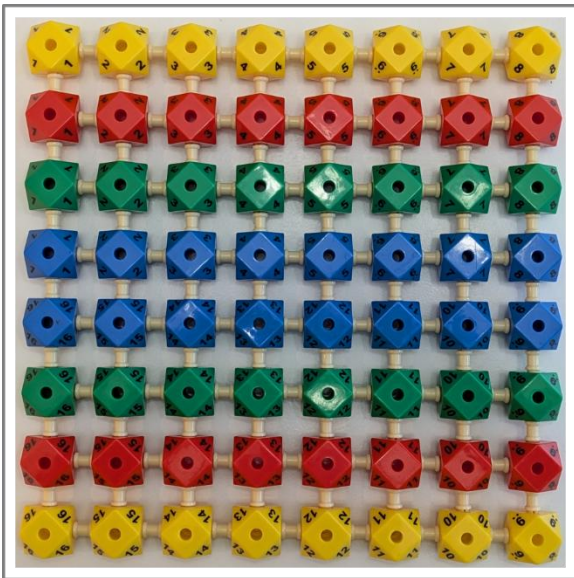
Skills Sets: [S.T.E.M.](#) | [Pattern recognition](#) | [Spatial intelligence](#) | [Motor skills](#) | [Creative thinking](#) | [Critical thinking](#) | [Logical thinking](#) | [Cognitive recognition](#) | [Problem solving](#) | [Reasoning](#) | [Number sequencing](#) | [Shape visualization](#) | [Concentration](#) | [Color recognition](#) | [Number recognition](#) | [3D Skills](#) | [Visual Perception](#) | [Place values](#) | [Dimensions](#) | [Object positioning](#) |

Teaching tool:

Use all four colors to make simple number patterns.

Emphasize: Prime numbers or Even numbers or Odd numbers: Rows or Columns or Diagonals or Squares or Rectangles and/or Random

Using: 4 x 4 squares; 5 x 5 squares; 6 x 6 squares; etc., 4 x 8 rectangles, 4 x 16 rectangles, etc.



Level 3: Color and number patterns

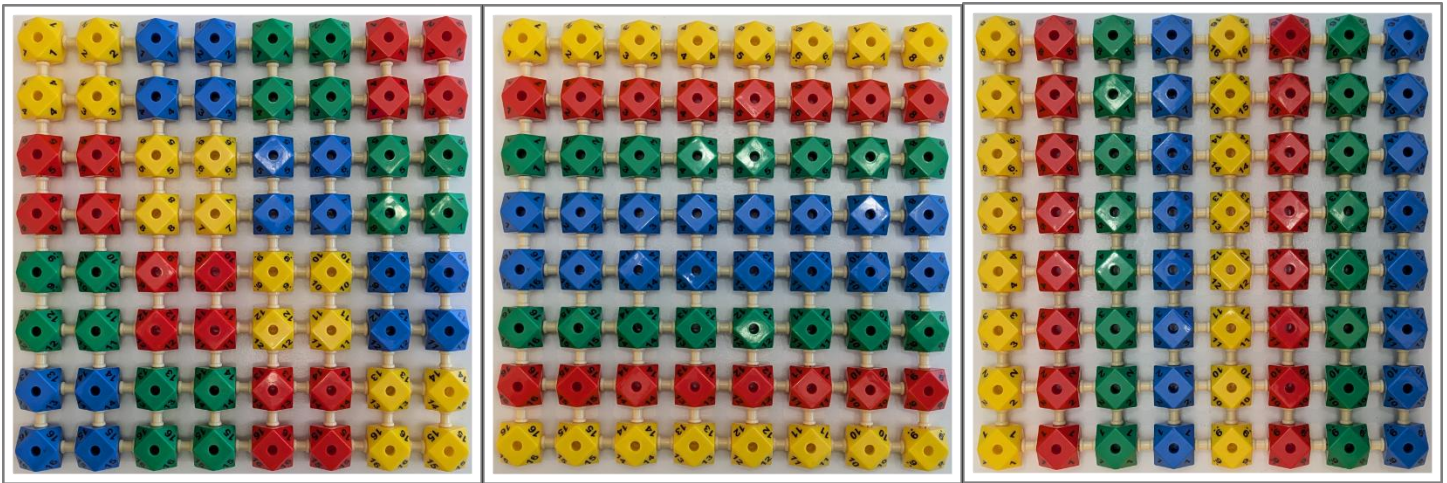
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Teaching tool:

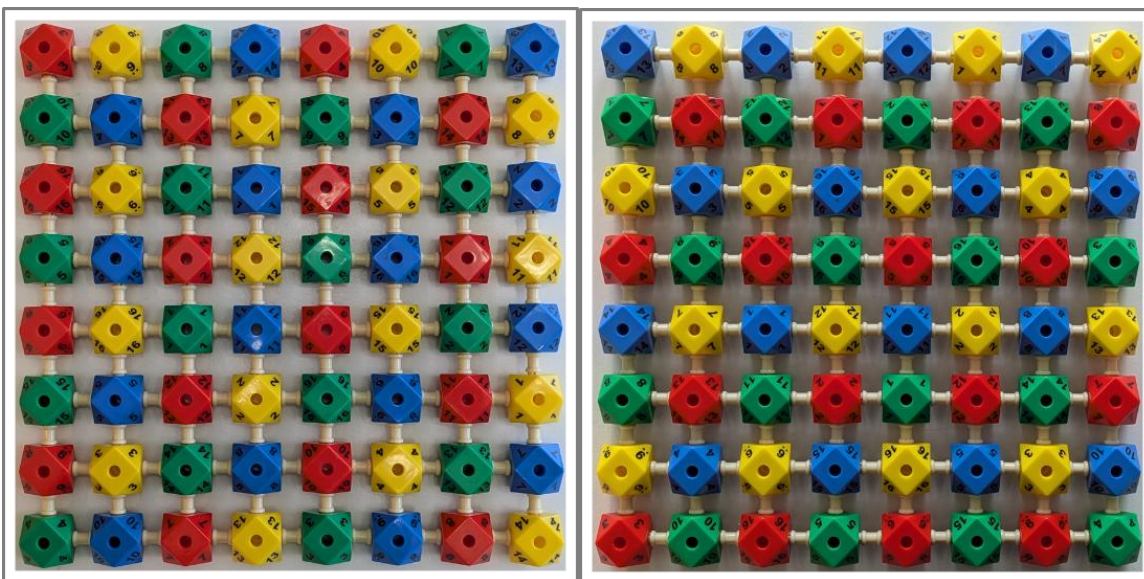
Use all four colors to make simple color and number patterns.

Emphasize: Prime numbers, Even numbers or Odd numbers: Rows or Columns or Diagonals or Squares or Rectangles and/or Random



Use all four colors to make simple color and number patterns (with no colors touching).

Emphasize: Prime numbers, Even numbers or Odd numbers: Rows or Columns or Diagonals or Squares or Rectangles and/or Random



Level 4: Object positioning


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Teaching tool:


How to use in class: Connect colors and number in different positions.

Use the cubes as props or let the students connect as you specify.

<p>What color is: on the top of red on the bottom of red</p> <p>What color is: in middle</p> <p>What number is: on the top of 1 on the bottom of 1</p> <p>What number is: in middle</p>	
---	--

<p>What color is: above the green below the green</p> <p>What color is: in middle</p> <p>What number is: above the 9 below the 9</p> <p>What number is: in middle</p>	
---	---

<p>What color is: immediately on top of green immediately on top of blue</p> <p>What number is: immediately on top of blue immediately on top of green</p>	
--	--

<p>What color is: immediately above green immediately below green</p> <p>What number is: immediately above green immediately below green</p>	
--	---

What color is:

in the top left
in the top right
in the center top

in the Center left
in the Center right
in the Center

in the Bottom left
in the Center bottom
in the Bottom right



What color is:

to the left of green
to the right of green
immediately to the

What color is:
What color is:
What color is:
immediately to the
right of red
in the center

What number is:
What number is:

to the right of 10
to the right of 10
of 10

What number is:
What number is:
of 2
of middle



What number is:

in the top left
in the top right
in the center top

in the Center left
in the Center right
in the Center

in the Bottom left
in the Center bottom
in the Bottom right



What color is:

beside red
beside yellow
above red
below yellow
diagonally opposite blue
diagonally opposite red
next to blue
next to red

What number is:

beside 2
beside 1
above 4
below 1
diagonally opposite 9
diagonally opposite 1
next to 9
next to 4



Opposite
Other side
Both sides
Behind, over, in front, side of

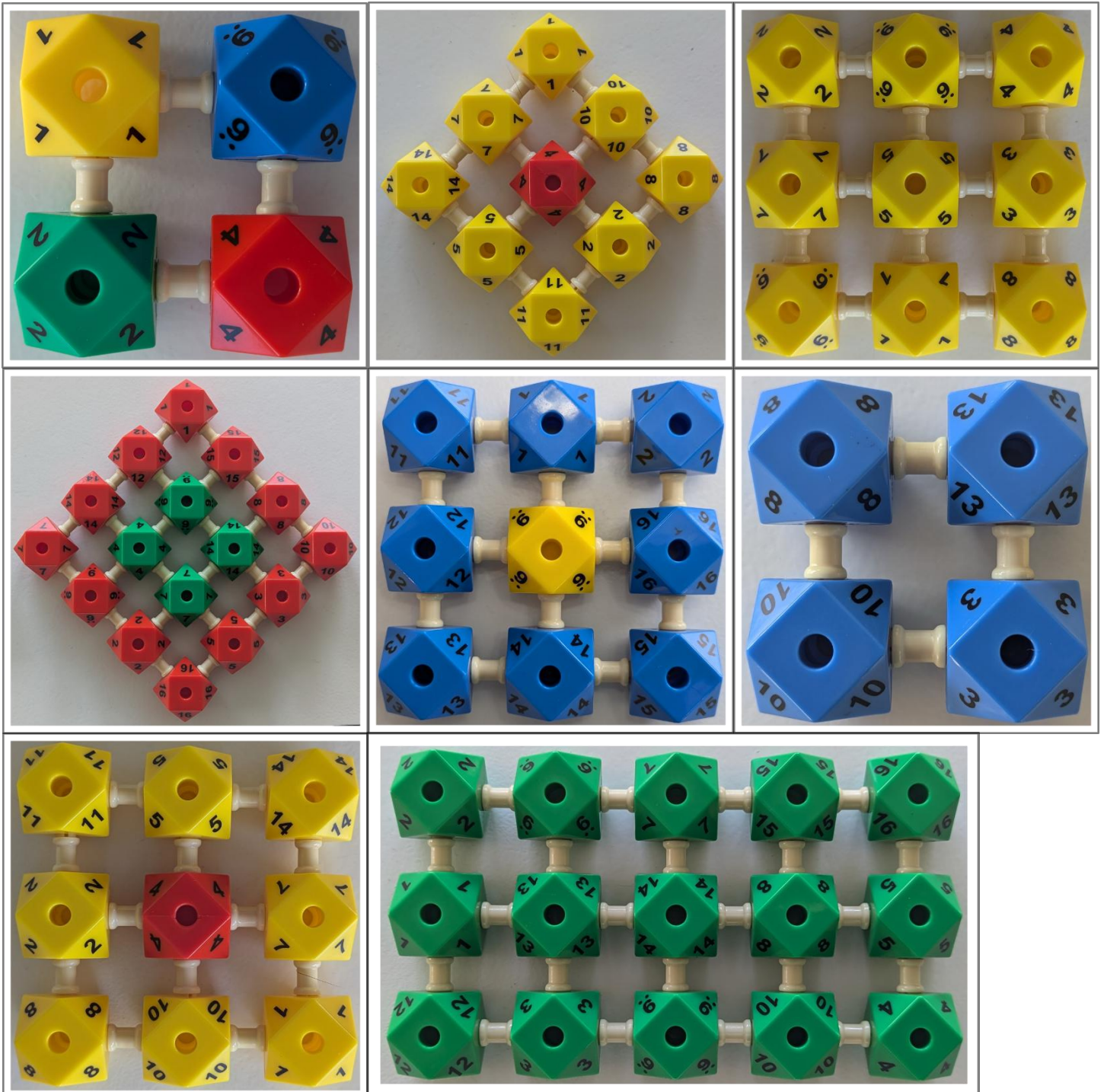
Level 5: Geometric shapes

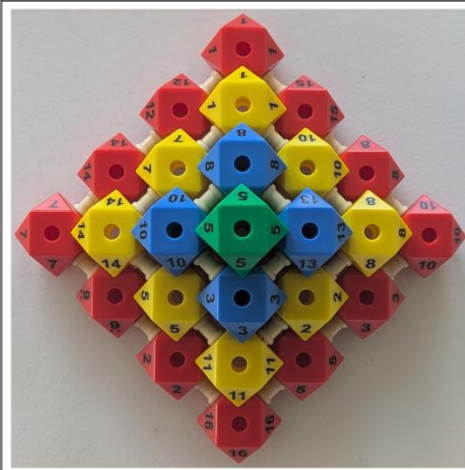
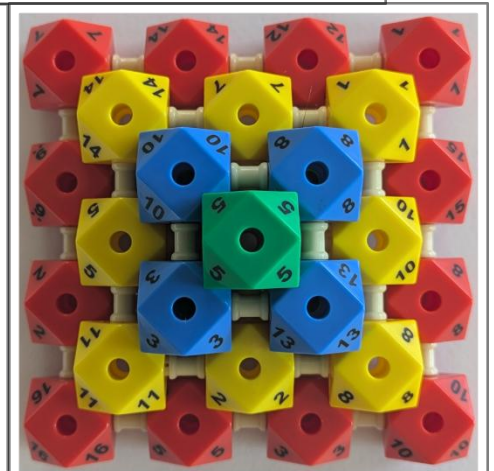
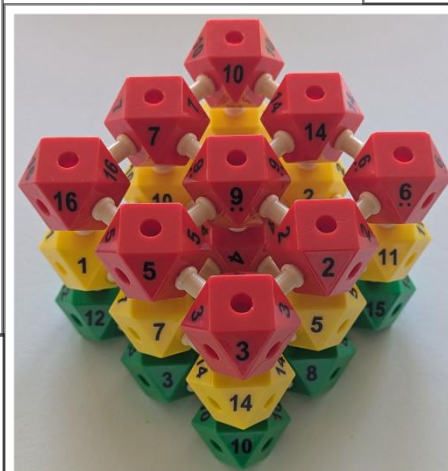
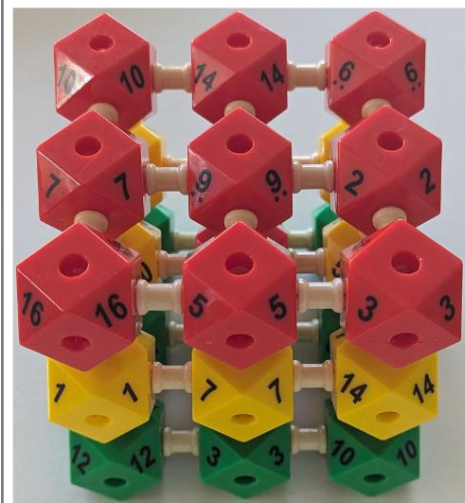
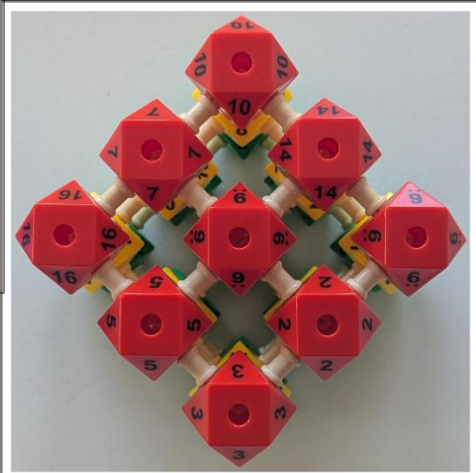
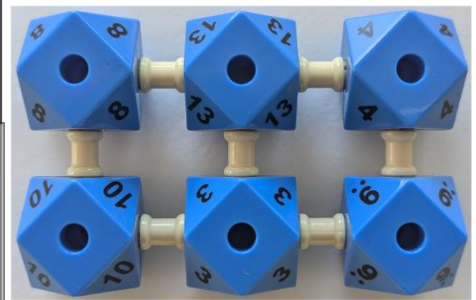
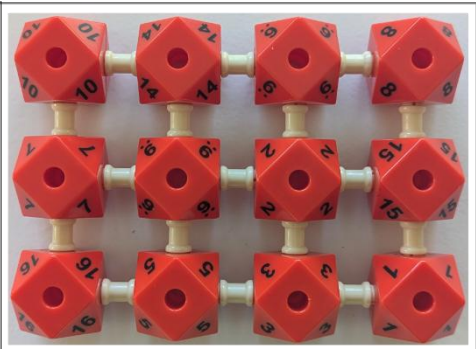
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Teaching tool:

Use all four colors to make simple geometric patterns.





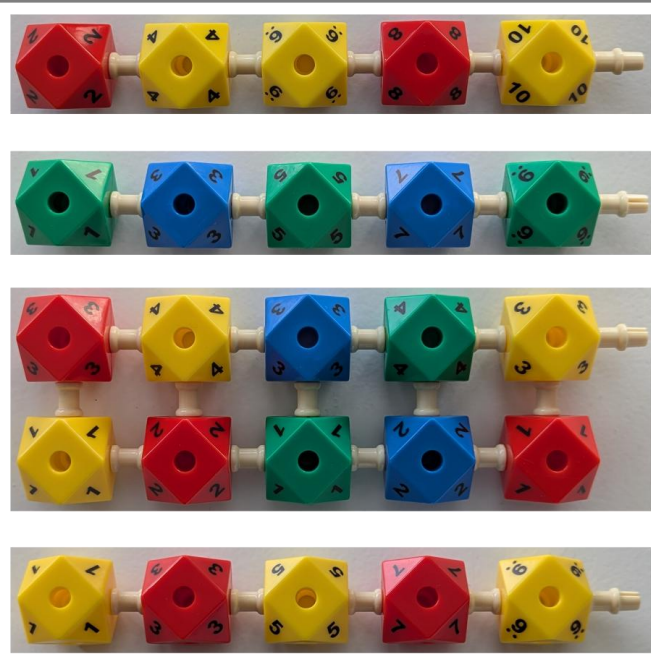
Level 6: Repeating color and number patterns

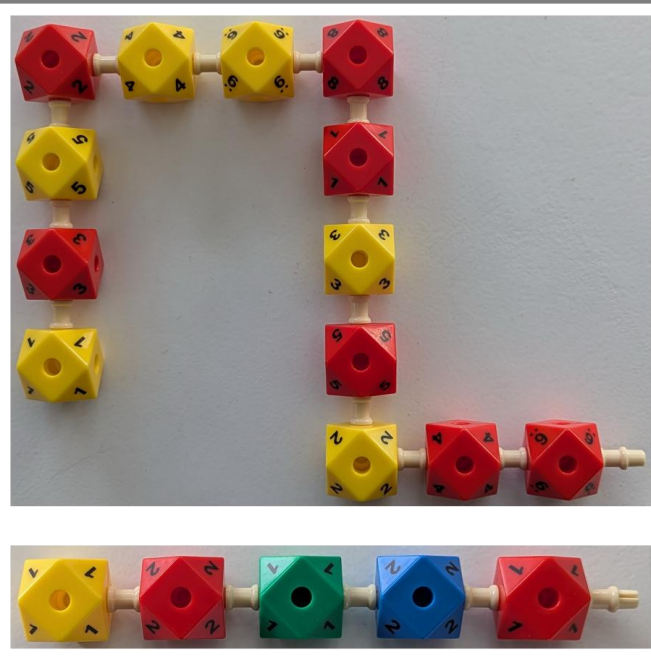
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Teaching tool:

Use colors to make repeating color and number patterns.

<p>What is the next color? What is the next number?</p>	
---	---

<p>What is the next color? What is the next number?</p>	
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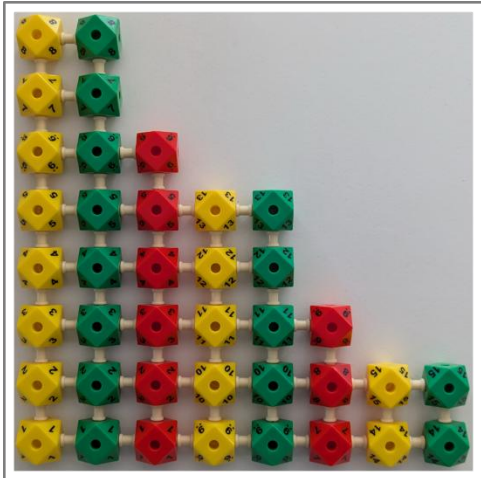
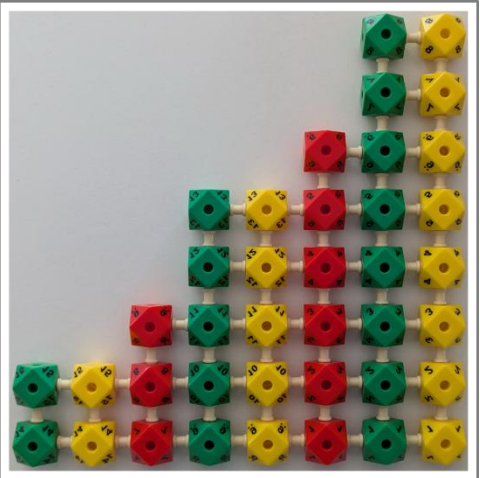
Level 7: Growing color and number patterns

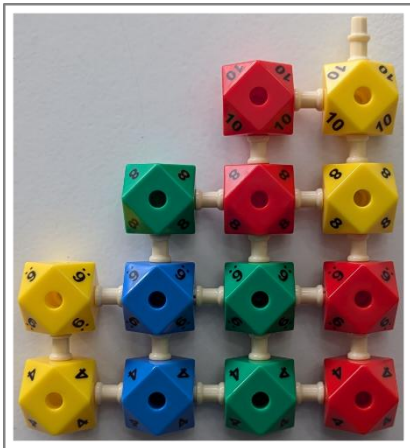
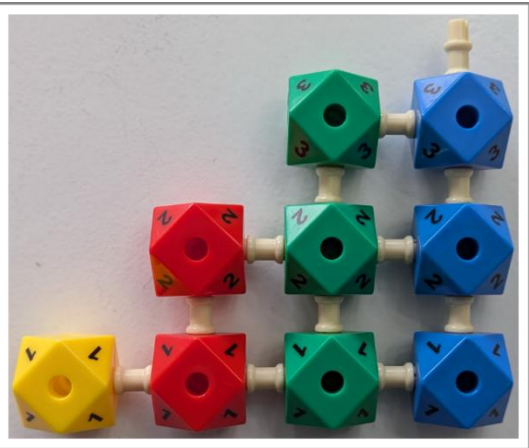
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Teaching tool:

Use colors to make growing color and number patterns.

<p>What is the next color? What is the next number?</p>		
---	--	--

<p>What is the next color? What is the next number?</p>		
---	---	--

Level 8: Make magic squares

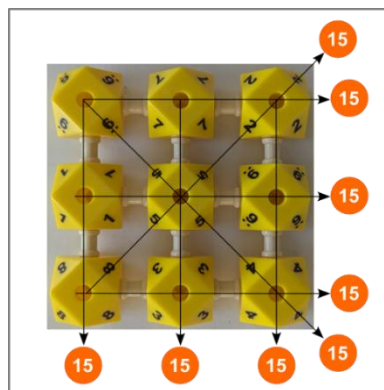
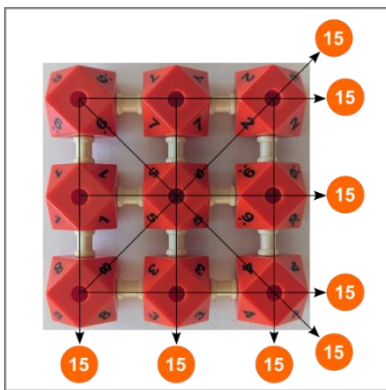
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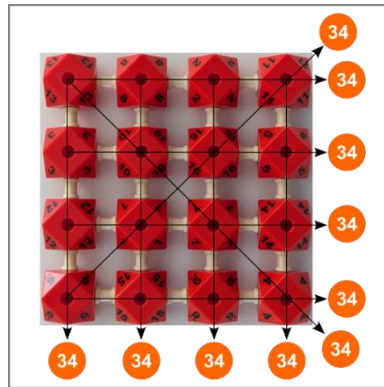
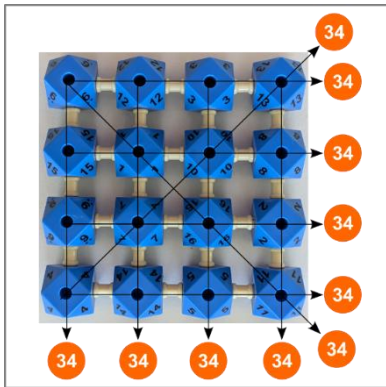
Teaching tool:

All Rows and all Columns and all Diagonals must add up to the same number.

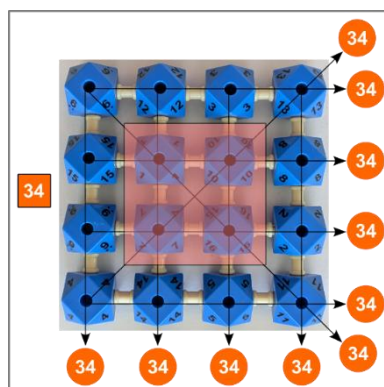
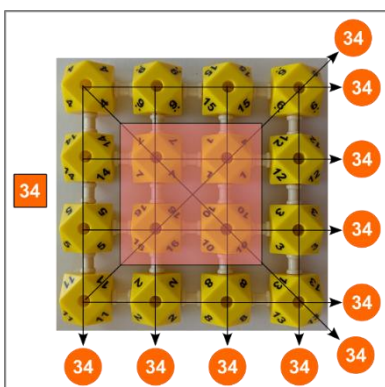
3 x 3 magic squares: 1 to 9, Totals = 15 | 2 to 10, Totals = 18 | 3 to 11, Totals = 21 | 4 to 12, Totals = 24 | 5 to 13, Totals = 27 | 6 to 14, Totals = 30 | 7 to 15, Totals = 33 | 8 to 16, Totals = 36 | (8 possible solutions for each - find them all)



4 x 4 magic squares: All Rows and all Columns and all Diagonal totals = 34: 880 possible solutions (try to find them all)



4 x 4 magic squares: All Rows and all Columns and all Diagonal totals = 34: with center 4 cubes also adding up to 34



Level 9: Make magic squares (No colors touching)

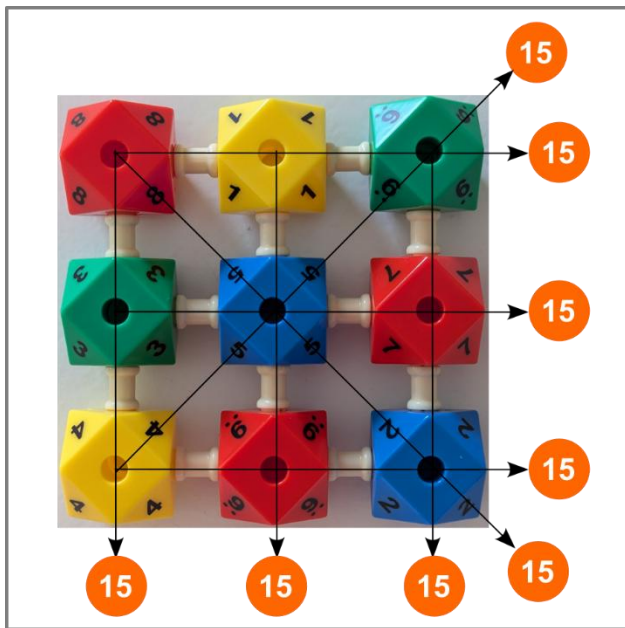
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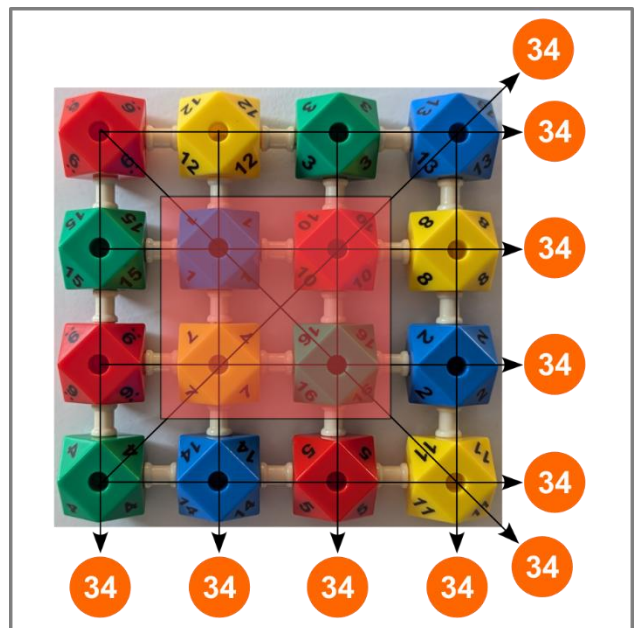
Teaching tool:

All Rows & All Columns & All Diagonals must add up to the same number.

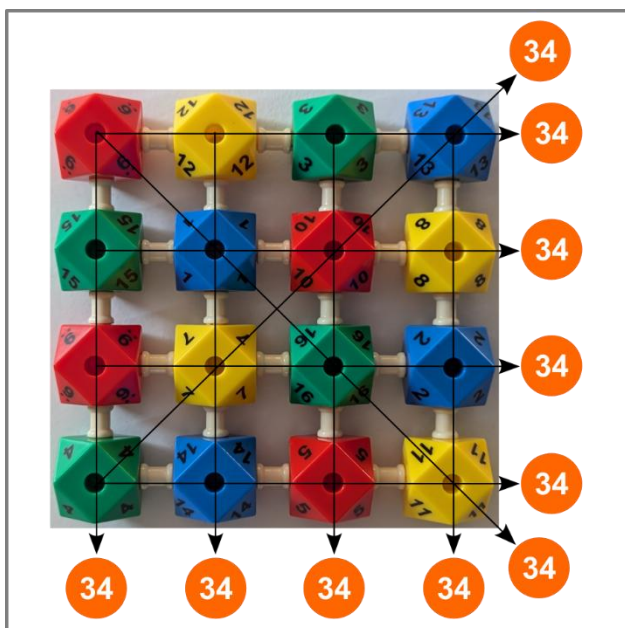
3 x 3 magic squares: All Rows and all Columns and all Diagonal totals = 15 (no colors touching)



4 x 4 magic squares: All Rows and all Columns and all Diagonal totals = 34: (with center 4 cubes also adding up to 34 (no colors touching)



4 x 4 magic squares: All Rows and all Columns and all Diagonal totals = 34: (no colors touching)



Level 10: Cube color patterns

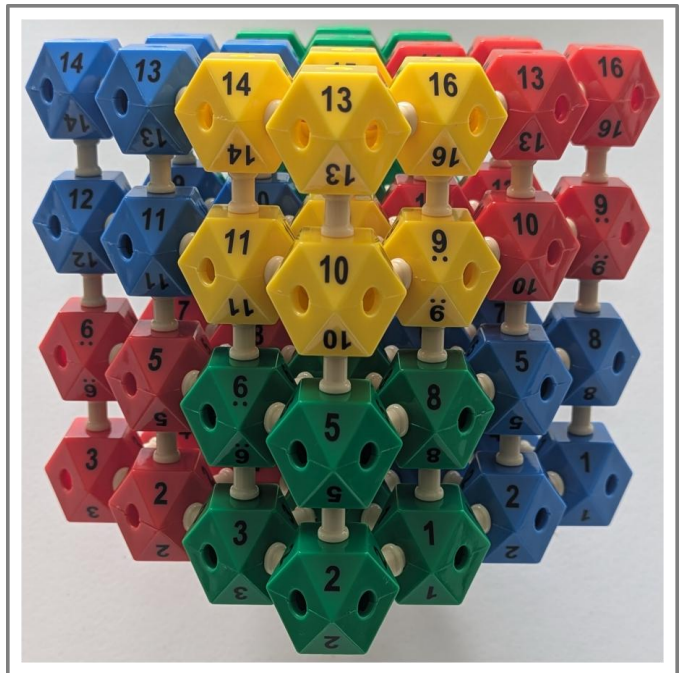
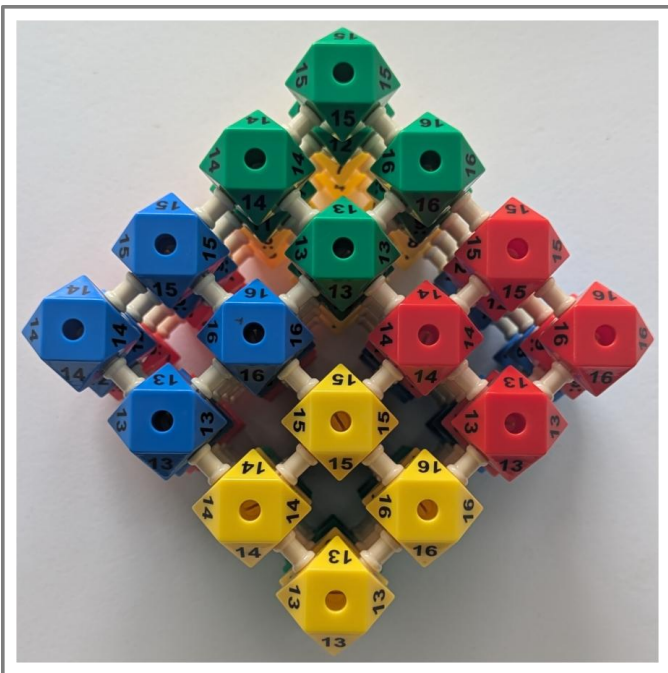
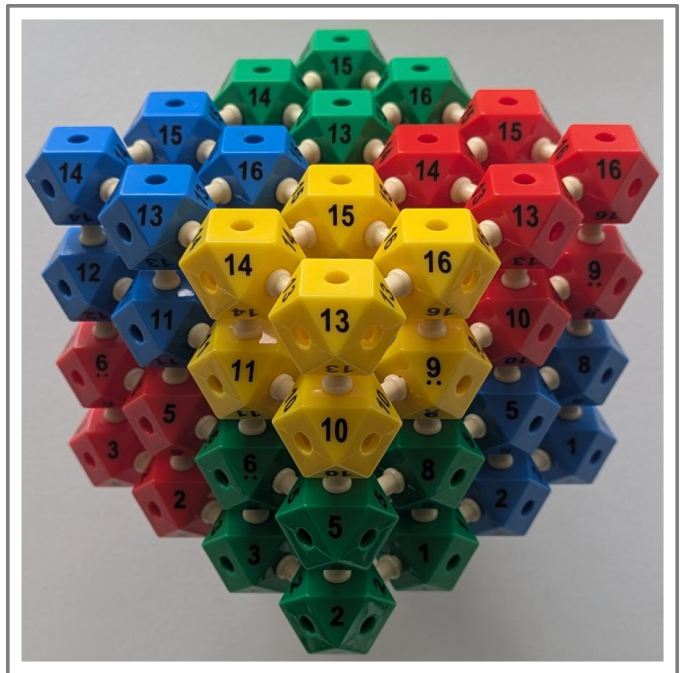
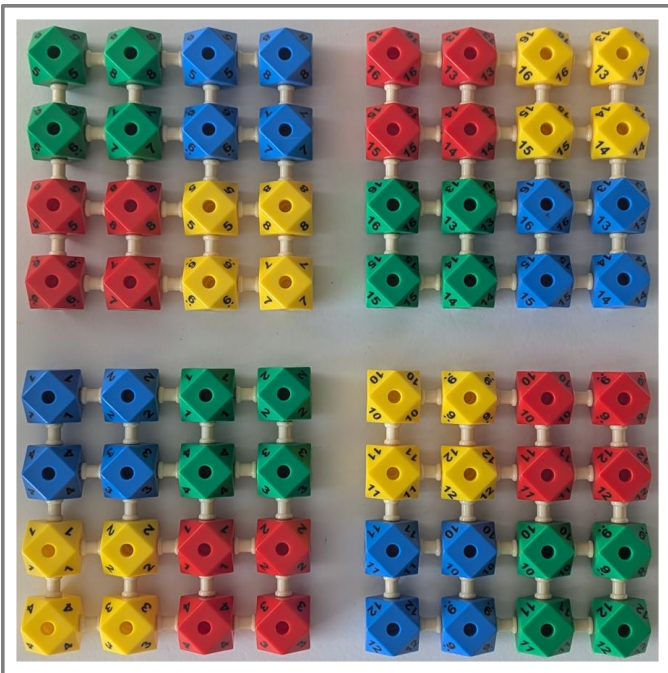
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Teaching tool:

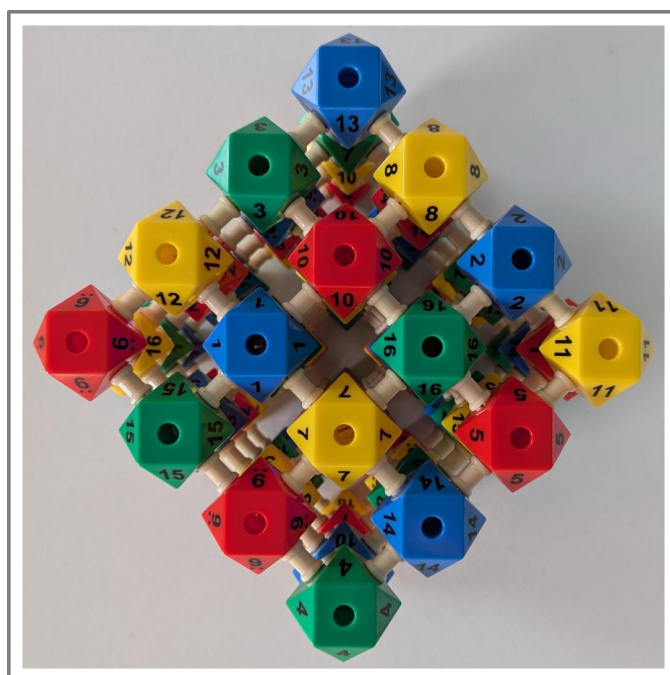
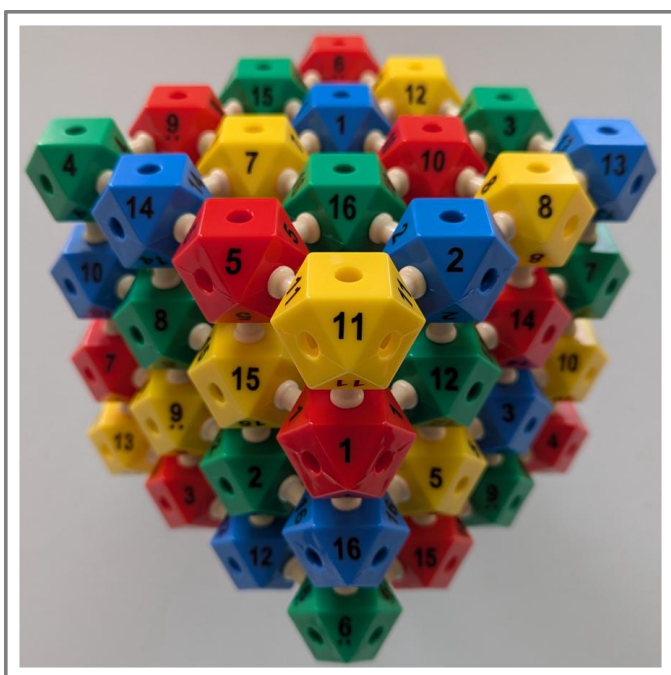
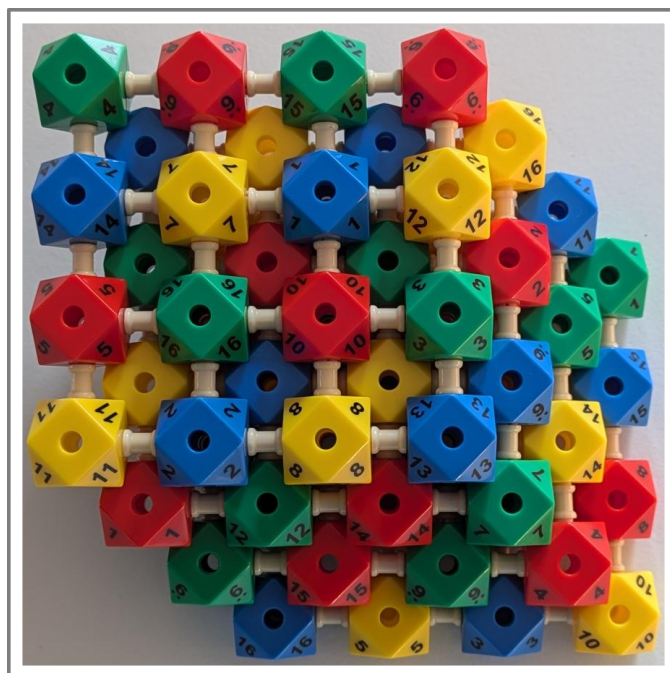
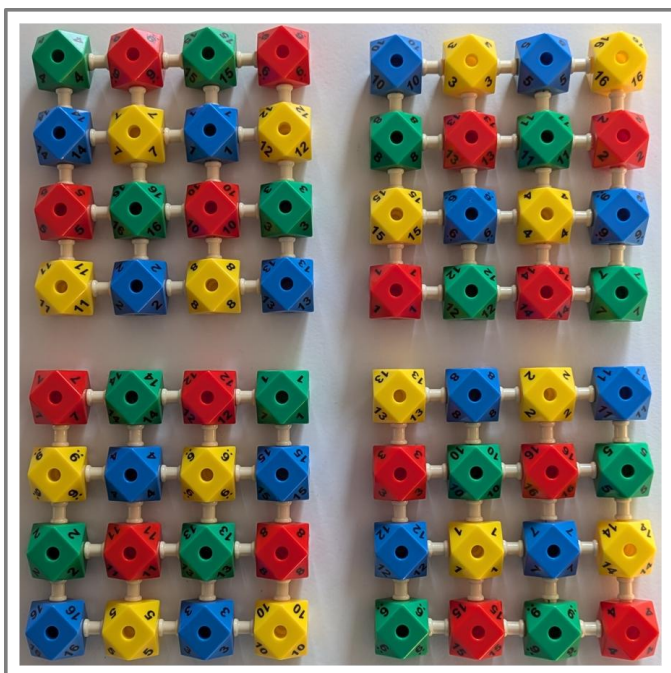
Cubes (4 x 4 x 4)

Use all four colors to make simple color patterns.



Cubes (4 x 4 x 4) – (No colors touching)

Use all four colors to make simple color patterns.



Level 11: Make magic squares

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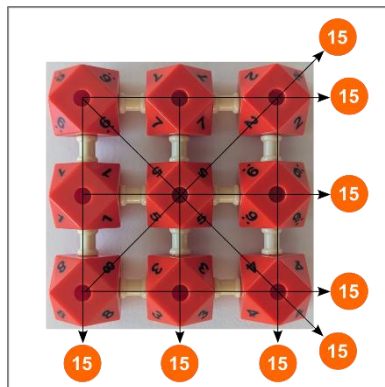
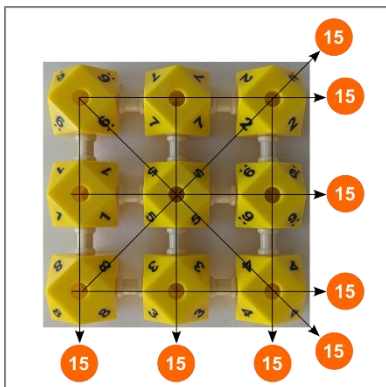
Skills Sets: [S.T.E.M.](#) | [Pattern recognition](#) | [Spatial intelligence](#) | [Motor skills](#) | [Creative thinking](#) | [Critical thinking](#) | [Logical thinking](#) | [Cognitive recognition](#) | [Problem solving](#) | [Reasoning](#) | [Number sequencing](#) | [Shape visualization](#) | [Concentration](#) | [Color recognition](#) | [Number recognition](#) | [3D Skills](#) | [Visual Perception](#) | [Place values](#) | [Dimensions](#) | [Object positioning](#) |

Teaching tool:

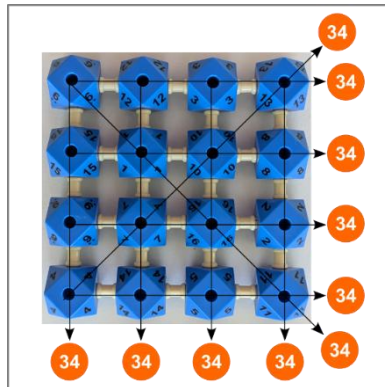
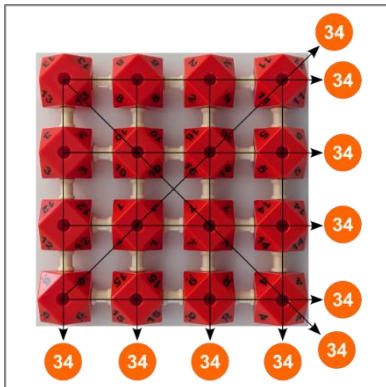
For use in the class: Four students can make 3 x 3 and 4 x 4 magic squares with one WizzleUP Solid game.

All rows and all columns and all diagonals must add up to the same number.

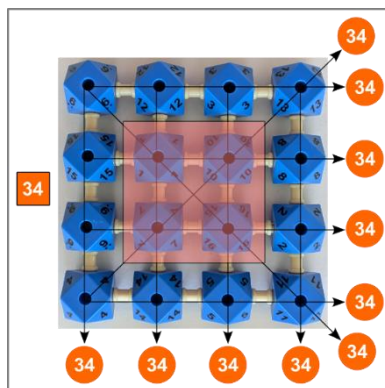
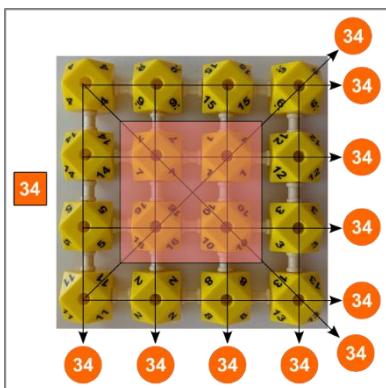
3 x 3 magic squares: All rows and all columns and all diagonals must add up to 15: 8 possible solutions



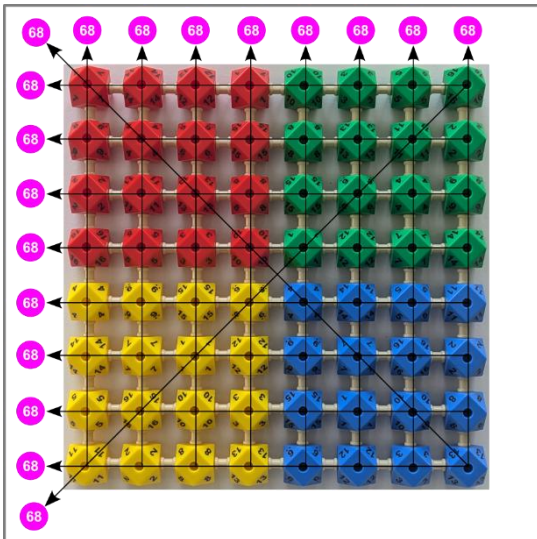
4 x 4 magic squares: All rows and all columns and all diagonals must add up to 34: 880 possible solutions



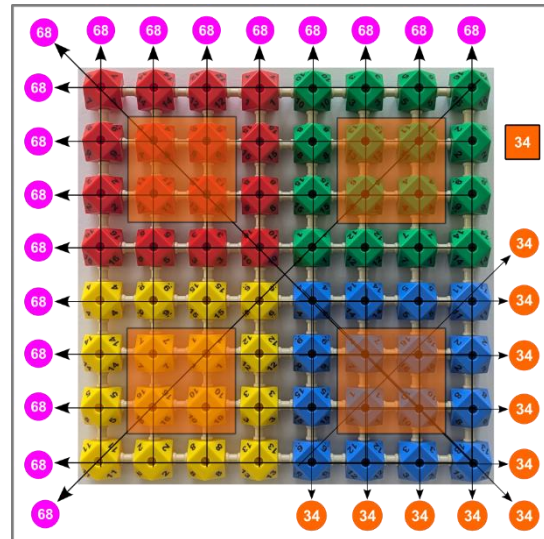
4 x 4 magic squares: All rows and all columns and all diagonals must add up to 34: center 4 cubes also adding up to 34



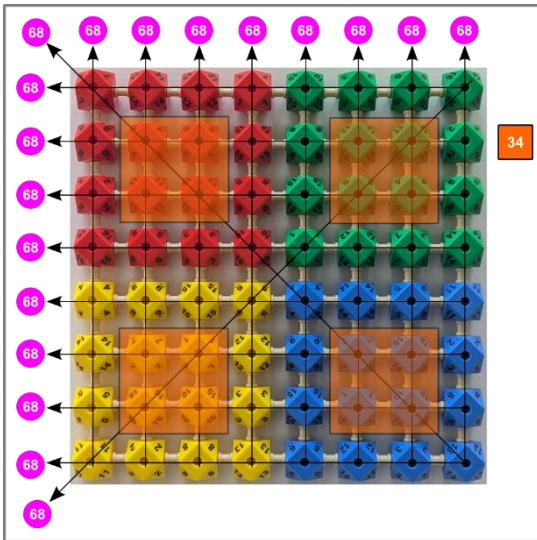
8 x 8 magic squares: All rows and all columns and all diagonals must add up to 68



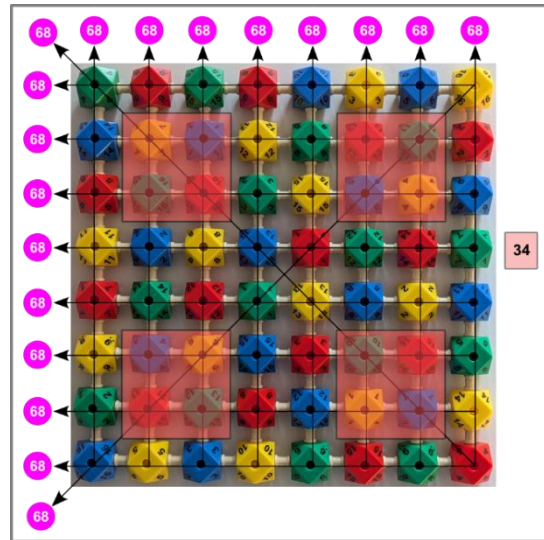
8 x 8 magic squares: All rows and all columns and all diagonals must add up to 68 and corner 4 x 4 add up to 34 and center of 4 x 4 square to also total 34



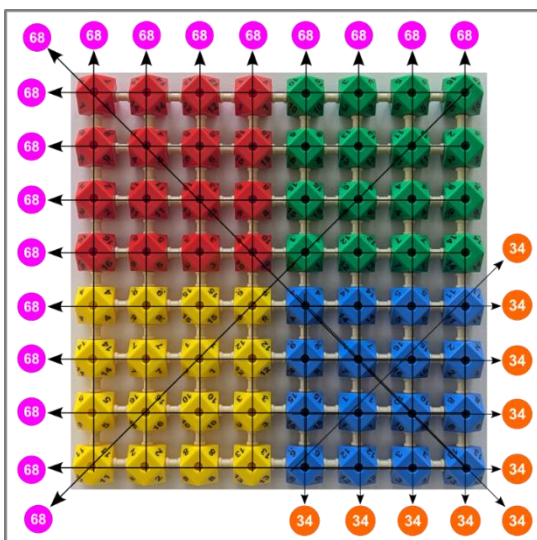
8 x 8 magic squares: All rows and all columns and all diagonals must add up to 68 and corner 4 x 4's add up to 34



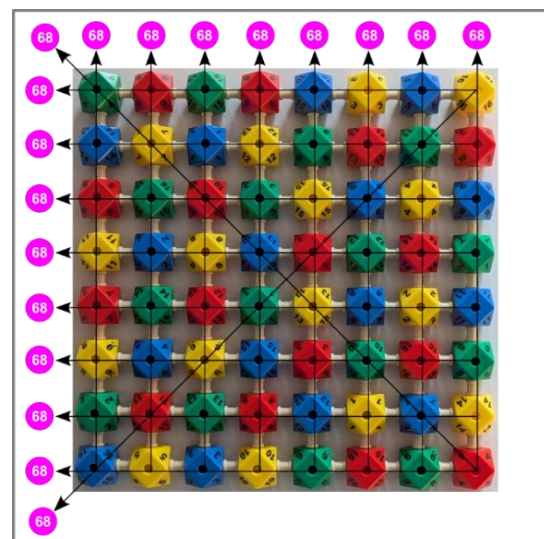
8 x 8 magic squares: random colors: All rows and all columns and all diagonals must add up to 68



8 x 8 magic squares: All rows and all columns and all diagonals must add up to 68 and corner 4 x 4's add up to 34



8 x 8 magic squares: random colors: All rows and all columns and all diagonals must add up to 68 and corner 4 x 4 to add up to 34 and center of 4 x 4 square to also total 34



Level 12: Make magic squares (No colors touching)

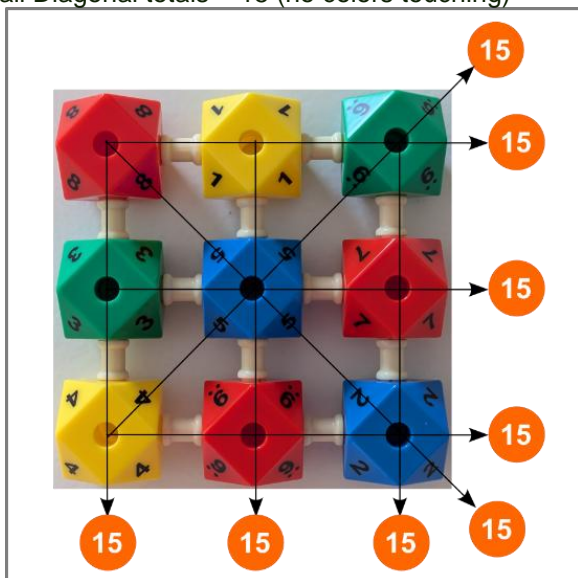
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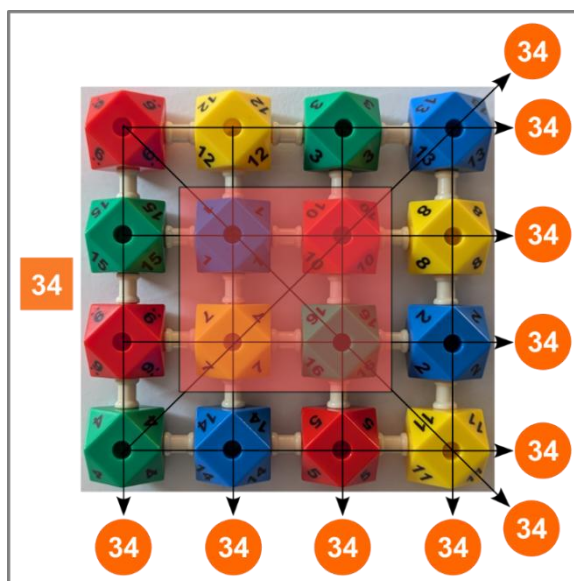
Teaching tool:

All Rows and all Columns and all Diagonals must add up to the same number.

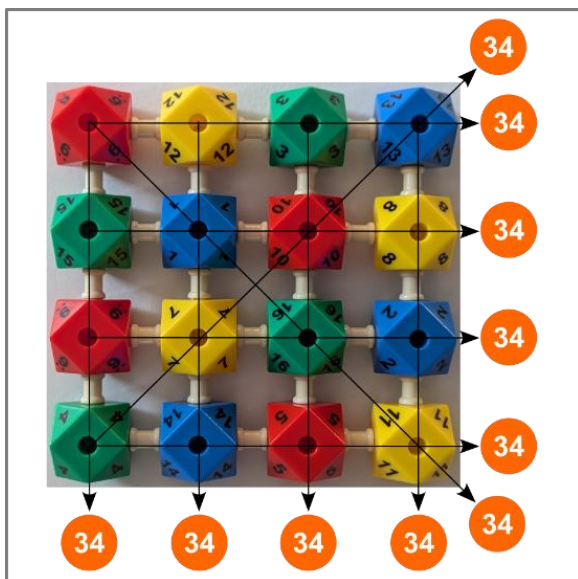
3 x 3 magic squares: All Rows and all Columns and all Diagonal totals = 15 (no colors touching)



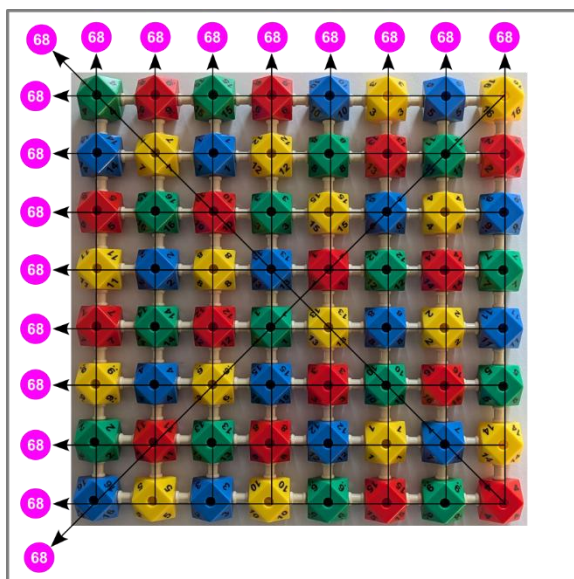
4 x 4 magic squares: All Rows and all Columns and all Diagonal totals = 34: (with center 4 cubes also adding up to 34 (no colors touching)



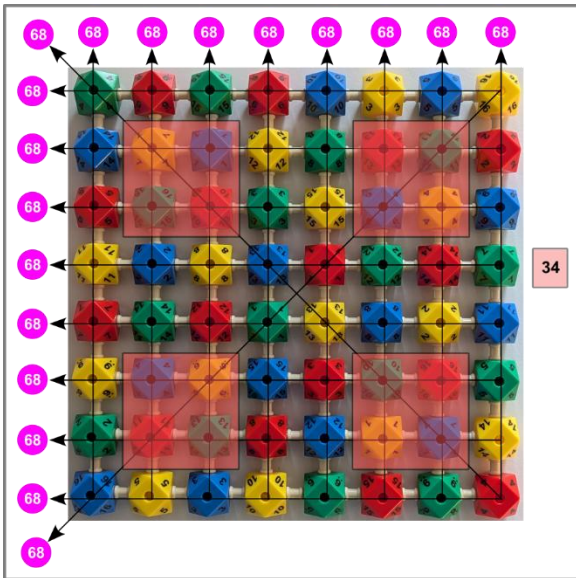
4 x 4 magic squares: All Rows and all Columns and all Diagonal totals = 34: (no colors touching)



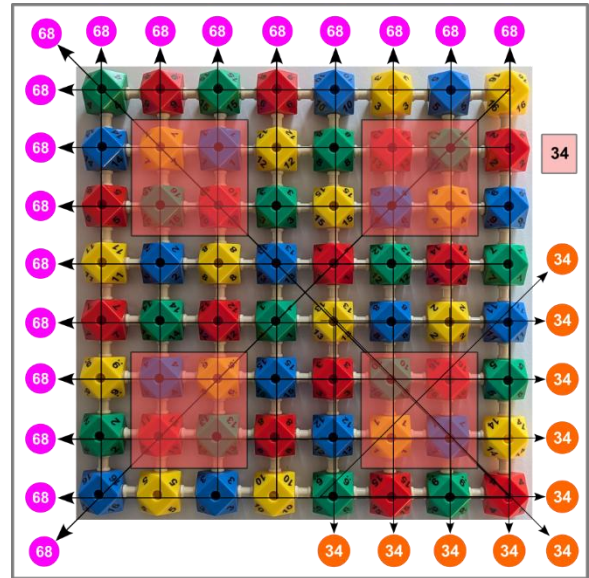
8 x 8 magic squares: All Rows and all Columns and all Diagonal totals = 68 (no colors touching)



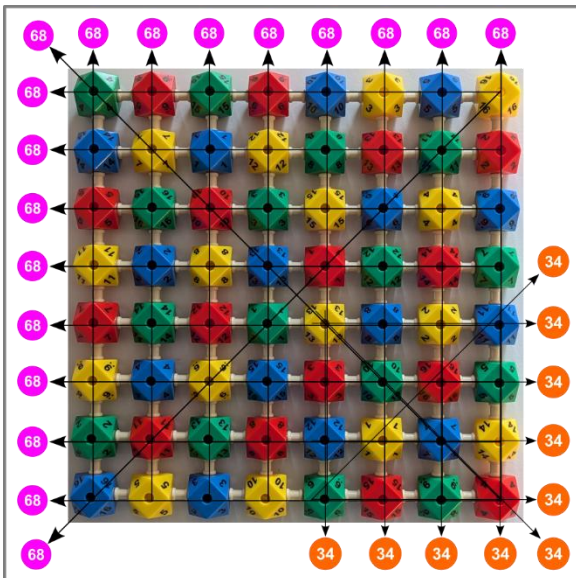
8 x 8 magic squares: All Rows and all Columns and all Diagonal totals = 68 ((with canter 4 cubes also adding up to 34)



8 x 8 magic squares: All Rows and all Columns and all Diagonal totals = 68 & 34 ((with canter 4 cubes also adding up to 34)



8 x 8 magic squares: All Rows and all Columns and all Diagonal totals = 68 & 34 (no colors touching)



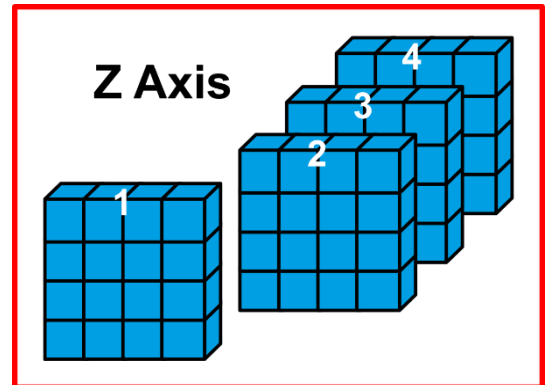
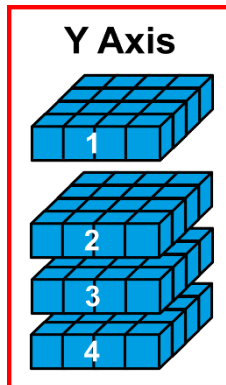
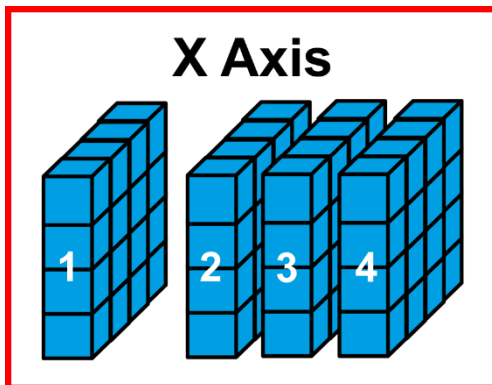
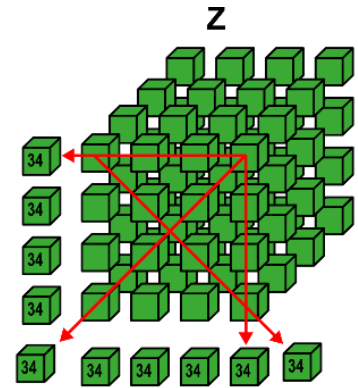
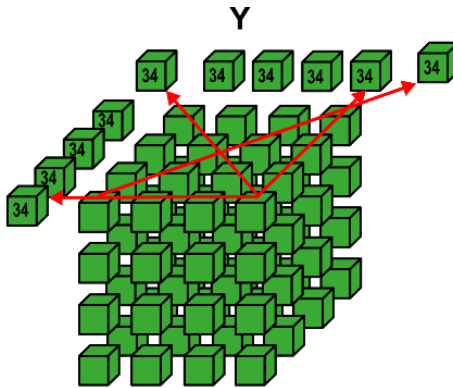
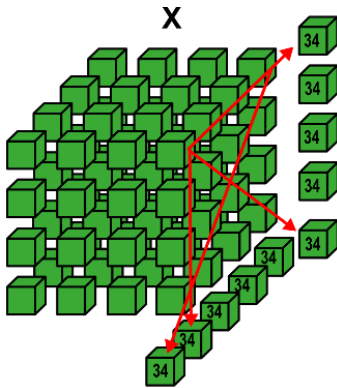
Level 13: Make magic cubes

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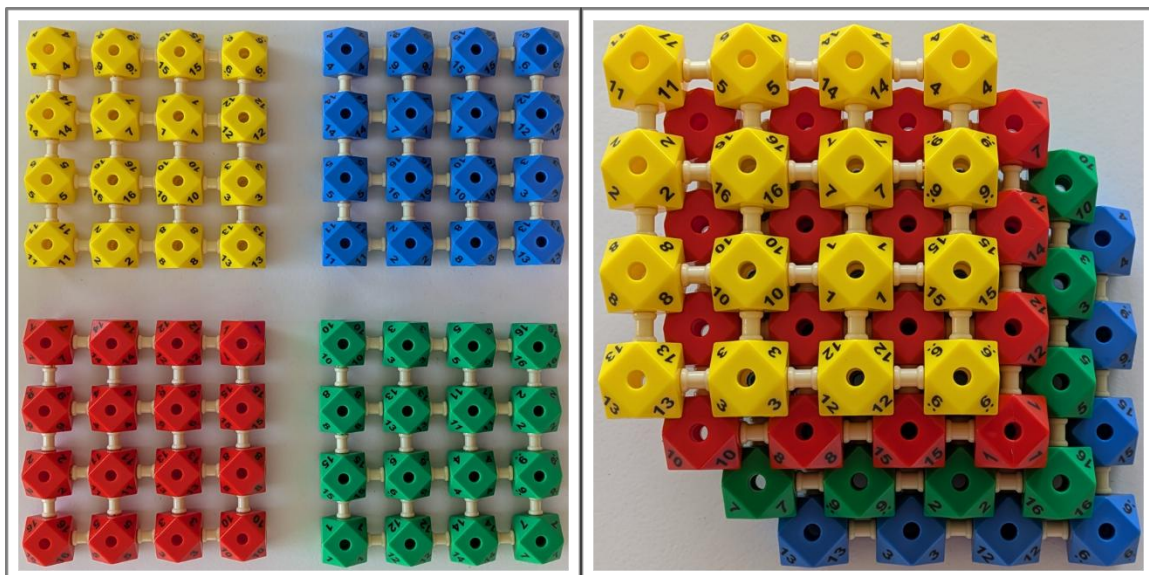
Skills Sets: [S.T.E.M.](#) | [Pattern recognition](#) | [Spatial intelligence](#) | [Motor skills](#) | [Creative thinking](#) | [Critical thinking](#) | [Logical thinking](#) | [Cognitive recognition](#) | [Problem solving](#) | [Reasoning](#) | [Number sequencing](#) | [Shape visualization](#) | [Concentration](#) | [Color recognition](#) | [Number recognition](#) | [3D Skills](#) | [Visual Perception](#) | [Place values](#) | [Dimensions](#) | [Object positioning](#)

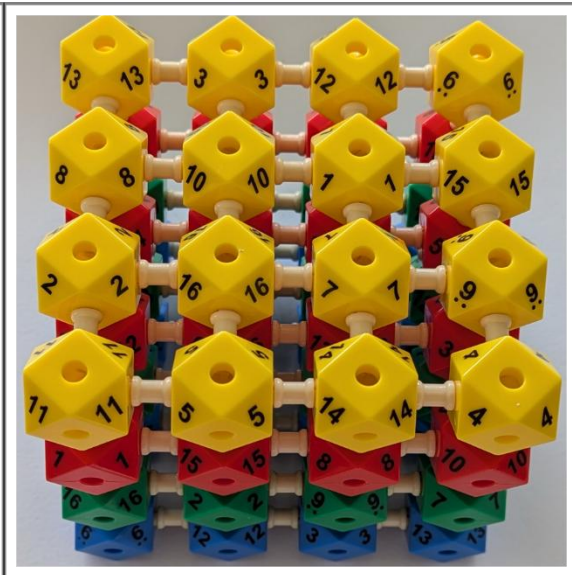
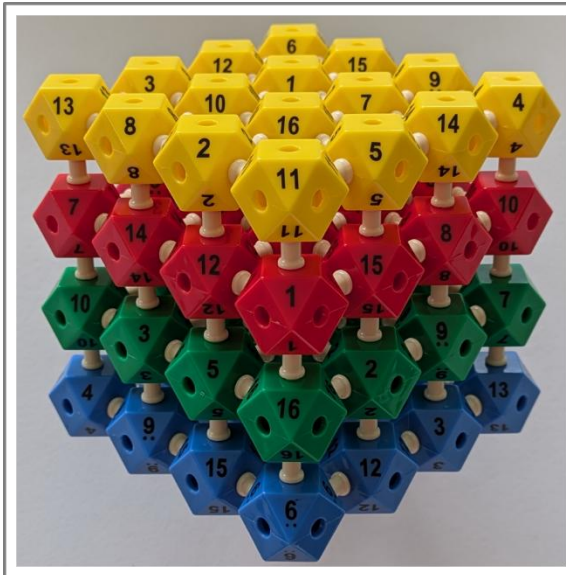
Teaching tool:

All Rows and all Columns and all Diagonals on all 4 layers of the X; Y and Z axis must add up to 34

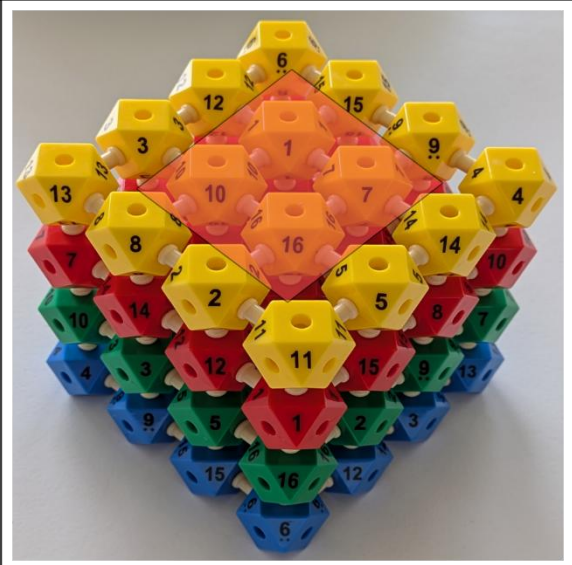
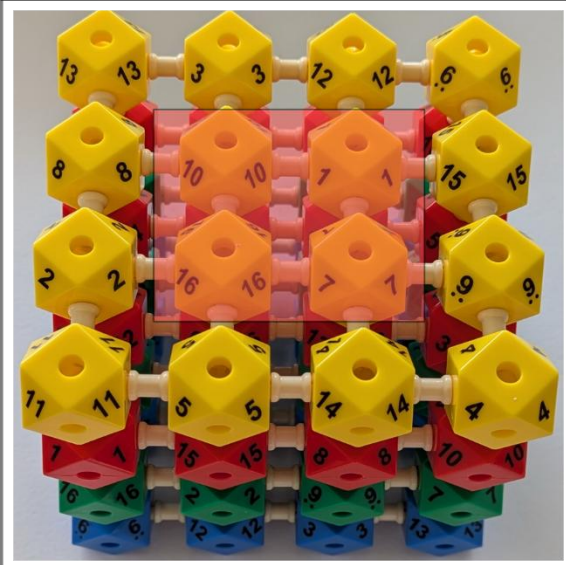
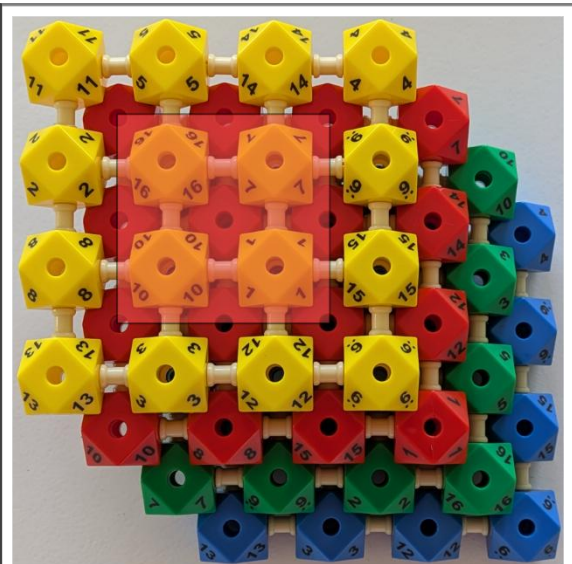
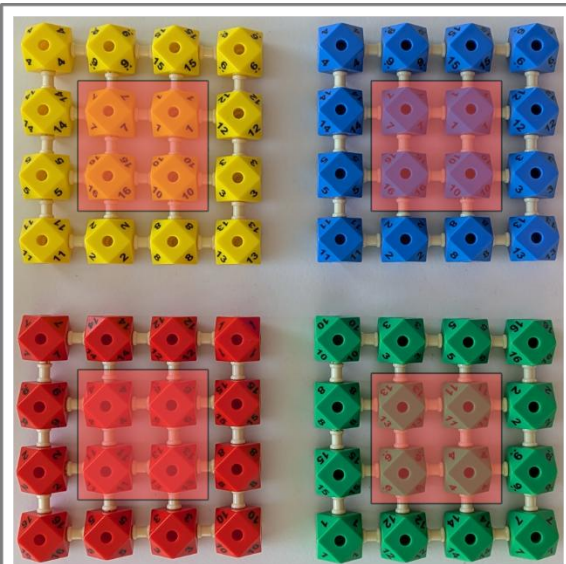


4 x 4 x 4 Cube: on all X; Y and Z axis: all 4 layers must Total = 34





4 x 4 x 4 Cube: on all X; Y and Z axis: all 4 layers must Total = 34: (all centre 4 cubes on all axis to add up to 34)



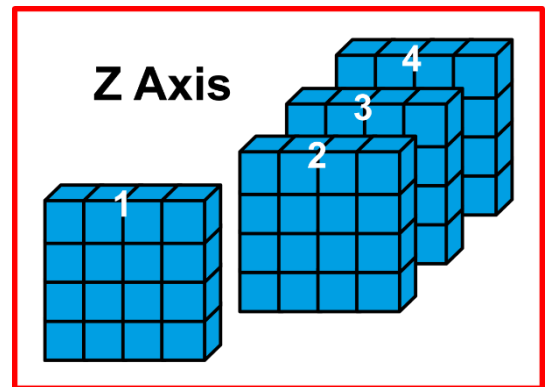
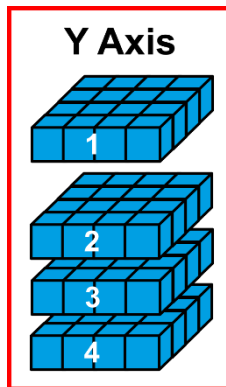
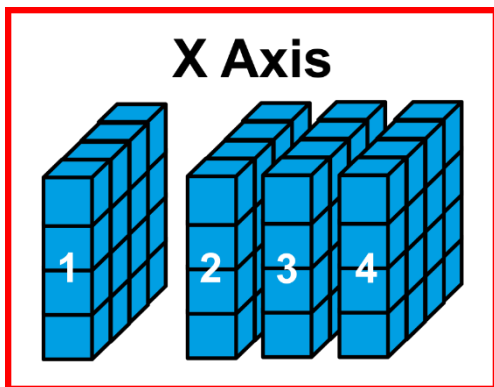
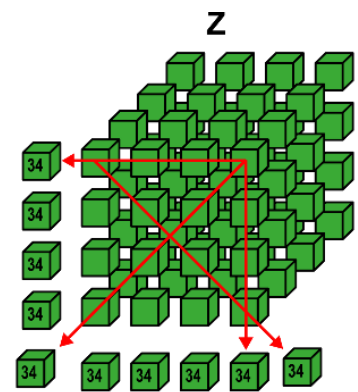
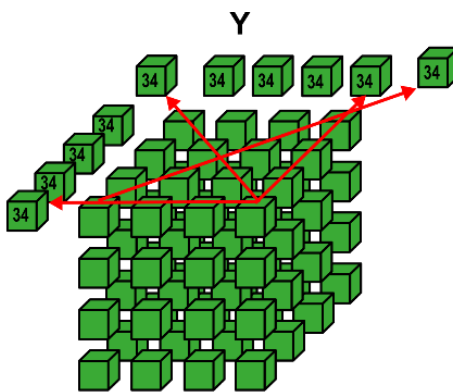
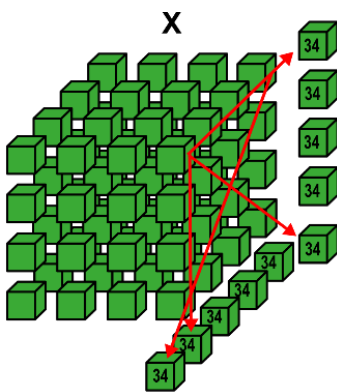
Level 14: Make magic cubes (no colors touching)

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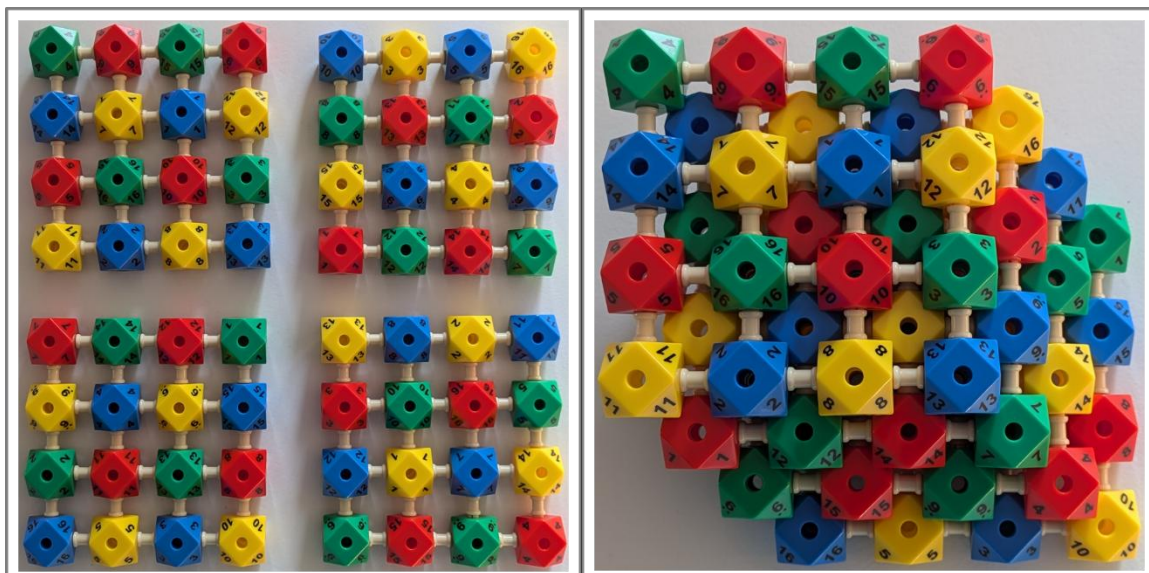
Skills Sets: [S.T.E.M.](#) | [Pattern recognition](#) | [Spatial intelligence](#) | [Motor skills](#) | [Creative thinking](#) | [Critical thinking](#) | [Logical thinking](#) | [Cognitive recognition](#) | [Problem solving](#) | [Reasoning](#) | [Number sequencing](#) | [Shape visualization](#) | [Concentration](#) | [Color recognition](#) | [Number recognition](#) | [3D Skills](#) | [Visual Perception](#) | [Place values](#) | [Dimensions](#) | [Object positioning](#) |

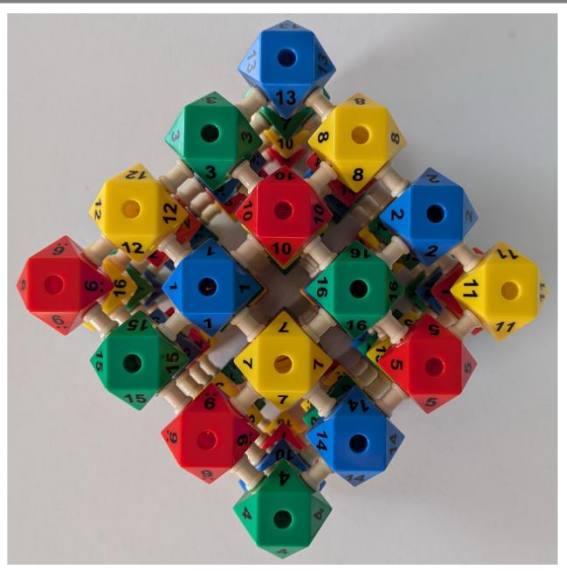
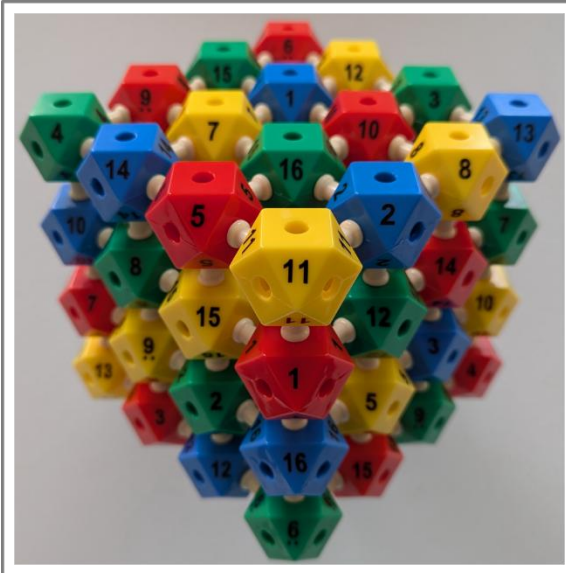
Teaching tool:

All Rows and all Columns and all Diagonals on all 4 layers of the X; Y and Z axis must add up to 34

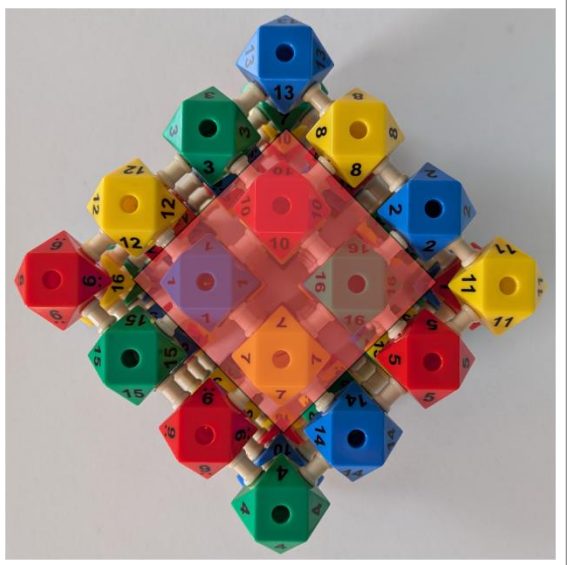
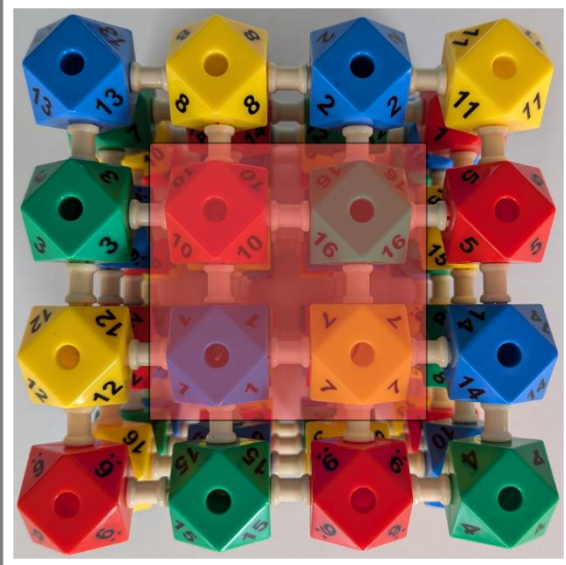
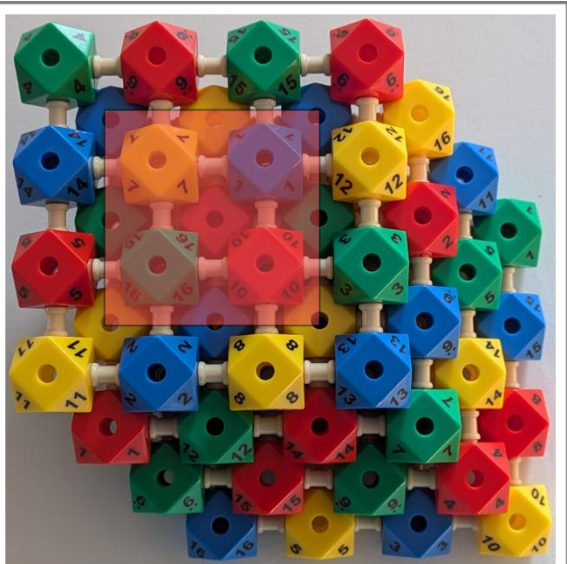
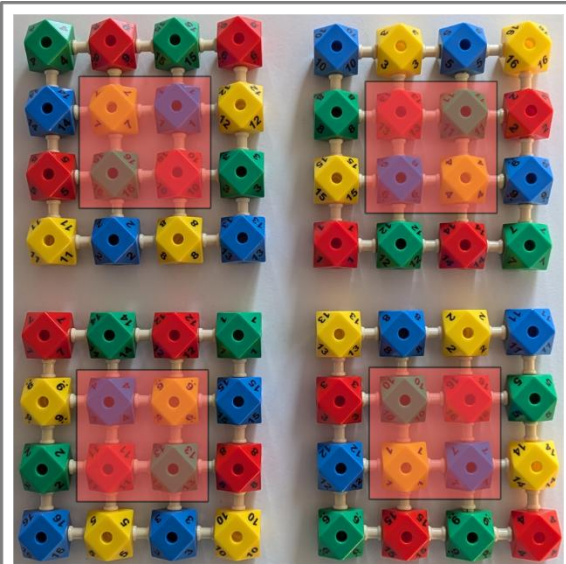


4 x 4 x 4 Cube: on all X; Y and Z axis: all 4 layers must Total = 34: (no colors touching)





4 x 4 x 4 Cube: on all X; Y and Z axis: all 4 layers must Total = 34: (no colors touching and centre 4 cubes on all axis add up to 34)



Skill Sets covered:

Skills Sets: [S.T.E.M.](#) | [Pattern recognition](#) | [Spatial intelligence](#) | [Motor skills](#) | [Creative thinking](#) | [Critical thinking](#) | [Logical thinking](#) | [Cognitive recognition](#) | [Problem solving](#) | [Reasoning](#) | [Number sequencing](#) | [Shape visualization](#) | [Concentration](#) | [Color recognition](#) | [Number recognition](#) | [3D Skills](#) | [Visual Perception](#) | [Place values](#) | [Dimensions](#) | [Object positioning](#) | [Sorting](#) | [Counting](#) | [Matching](#) | [Problem Solving](#) | [Positioning](#) |

S.T.E.M

- is a common abbreviation/acronym for four closely connected areas of study: science, technology, engineering and mathematics.
- fields are often associated due to the similarities that they share both in theory and practice.
- education can provide versatile skills, like problem solving and critical thinking, that are beneficial both in and out of the workplace.

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Pattern recognition:

- is a branch of machine learning that focuses on the recognition of patterns and regularities in data and forms a large part of mathematics.
- has its origins in engineering, and the term is popular in the context.
- is a mature but exciting and fast developing field, which underpins developments in cognate fields such as computer vision, image processing, text and document analysis and neural networks.
- is a cognitive process that happens in our brain when we match some information that we encounter with data stored in our memory.
- has applications in statistical data analysis, signal processing, image analysis, information retrieval, bioinformatics, data compression, computer graphics and machine learning.

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Spatial intelligence:

(Visualisation; Recognition; Reasoning; Awareness)

- is the ability to mentally manipulate 2-dimensional and 3-dimensional figures.
- is a crucial tool required for many professions, yet relatively neglected at school.
- is what you do when you visualize shapes in your “mind’s eye”.
- It is a proven fact that spatial intelligence can improve your test scores by a substantial margin.

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Motor skills:

- A motor skill is an intentional movement involving a motor or muscular component that must be learned and voluntarily produced to proficiently perform a goal-oriented task.
- Many factors contribute to the ability and the rate that you develop your motor skills.

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Creative thinking:

- is the ability to look at problems or situations from a fresh perspective.
- involves thinking outside the box and coming up with unique, effective solutions.
- is not limited to artistic fields but is essential in every profession, from business and science to technology and education.

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Critical Thinking:

- is a kind of thinking in which you question, analyse, interpret, evaluate and make a judgement about what you read, hear, say, or write.
- comes from the Greek word “kritikos” meaning “able to judge or discern”.
- does not mean being negative or focusing on faults.
- means being able to clarify your thinking so that you can break down a problem or a piece of information, interpret it and use that interpretation to arrive at an informed decision or judgement.
- is applied consistently means “a critical thinking mindset”, but no one is born this way.

- is an attribute which are learnt and improved through practice and application.

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Logical Thinking:

- is the ability to observe situations, reactions, feedback, or tasks and makes rational conclusions.
- is an essential tool in the workplace to help analyze problems, brainstorm ideas, and find answers.
- allows one to come up with the right solutions that are financially reasonable, probable, and actionable.
- is similar to critical thinking, logical thinking involves objectively studying a situation and using reasoning to develop a viable solution or generate ideas.

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Cognitive visual object recognition (perception):

- is the ability for you to perceive an object's physical properties (such as shape, colour and texture) and apply semantic attributes to the object, which includes the understanding of its use, previous experience with the object and how it relates to others.

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Problem solving:

- is the act of defining a problem; determining the cause of the problem; identifying, prioritizing, and selecting alternatives for a solution; and implementing a solution.
- involves critical thinking, decision-making, creativity and information processing.

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Reasoning:

- is the action of thinking about something in a logical, sensible way.
- is the ability to assess things rationally by applying logic based on new or existing information when making a decision or solving a problem.
- Is made up of deductive reasoning, inductive reasoning, abductive reasoning, de-compositional reasoning, cause-and-effect reasoning, critical thinking and reasoning by analogy.
- is a specific observation that a condition holds.

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Number Sequencing:

- is a list of numbers that are linked by a rule.
 - If you work out the rule, you can work out the next numbers in the sequence.
 - What is the next number? 6; 9; 12; “?”
 - E.g. if the difference between each number is 3.
 - Then the rule for this sequence is to **add 3** each time.
- You can work now work out the next number in the sequence.
 - What is the next number? 6; 9; 12; “**15**”

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Shape context (visualization):

- Shape context is a feature descriptor used in object recognition.

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Concentration:

- in learning is the act or process of concentrating : the state of being concentrated, especially : direction of attention to a single object.
- is the he ability to keep our attention on something for a continuous period.
- is otherwise known as 'sustained attention'.
- is important for learning. We need to attend to and concentrate on things in order to understand and remember them.

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Color Recognition:

- means that children are able to match, identify and name colors.
- is an abstract concept that takes time.
- is a developmental progression that includes a variety of foundational skills that children need to master before they are able to truly understand color.
- is a vital component of their cognitive and visual development.
- skills enable children to understand and interpret the world around them more effectively.

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Numbers Recognition:

- is when a child learns how to identify different numbers by their names, by the way that they look, and by matching them to their representative quantities.
- is learned, how to write numbers in numerical form as well as in words with their correct spellings.

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3D Skills:

- Spatial visualization is the ability or visual-spatial ability is the ability to mentally manipulate 2-dimensional and 3-dimensional figures.
- is typically measured with simple cognitive tests and is predictive of user performance with some kinds of user interfaces.

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Visual Perception:

- refers to the brain's ability to interpret and make sense of visual information received from our eyes.
- involves recognizing shapes, colors, depth and interpreting spatial relationships between objects.
- is the ability to see and interpret one's visual environment.
- is the brain's ability to make sense of what the eyes see.
- does not only include seeing, but also includes organizing and interpreting visual information.

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Place Values:

- is a system where the value of a digit as well as the position of the digit in a number determines the value of the number.
- describes the position or place of a digit in a number. Each digit has a place in a number.
- of digits of a number of right to left is units, tens, hundreds, thousands, ten thousand, a hundred thousand, and so on.

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Dimensions:

- is the measurement of something in physical space.
- can describe something less tangible, such as the magnitude or extent of something.

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Object positioning:

- refers to the spatial location of an object in visual extra personal space, which is computed based on signals from the eyes, head, and body to direct arm movements accurately.
- involves transforming retinal coordinates into egocentric coordinates primarily in the intraparietal sulcus.

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WizzleUP assists in Mathematics:

Arithmetic | Algebra | Abstract Algebra | Linear Algebra | Graph Theory | Game Theory | Artificial Intelligence | Computer Programming | Topology | Cryptology | Optimization | Number Theory | Probability

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