

## Suggested Internet Sources

Periodically, Internet Resources are updated on our web site at [www.LibraryVideo.com](http://www.LibraryVideo.com)

- **mathforum.org/**  
This Drexel University site offers a multitude of math problems, lesson plans, math resources, and a question/answer section for students and teachers.
- **mtn.merit.edu/resources/math/multiplication\_and\_division.html**  
The Michigan Teacher Network has compiled over 55 sites, supported by Michigan state standards, designed to aid students in practicing geometry problems.
- **math.rice.edu/%7Elanius/Geom/index.html**  
Rice University offers sites and on-line activities for students to sharpen their geometric skills.

## Suggested Print Sources

- Long, Lynette. *Groovy Geometry: Games and Activities That Make Math Easy and Fun*. J. Wiley, Hoboken, NJ; 2003.
- Neuschwander, Cindy. *Sir Cumference and the Great Knight of Angleland: A Math Adventure*. Charlesbridge, Watertown, MA; 2001.
- Neuschwander, Cindy. *Sir Cumference and the Sword in the Cone: A Math Adventure*. Charlesbridge, Watertown, MA; 2003.

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### TEACHER'S GUIDE

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### TITLES IN THIS SERIES

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| • 3-D Shapes                                | • Equations                            | • Operations With Large Numbers                  |
| • Complements: Making 100 & 1000            | • Equivalent Fractions & Mixed Numbers | • Percentages                                    |
| • Decimals                                  | • Fractions                            | • Rounding Numbers                               |
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|   | • Number Patterns                      |  |
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Teacher's Guides Included and Available Online at:



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## 3-D Shapes

Grades 4-6

Review and practice of math concepts is an essential component in maintaining prior knowledge and problem-solving skills. This series reinforces important skills taught in grades 4-6 through the use of animated characters and an engaging storyline.

In each episode, students will become Special Agents to assist Top Secret Agent Matt Mattics in solving two sets of math problems focusing on a core math concept. Paper and pencil need to be ready as your students record their answers to these math questions (between 7-16 total problems). Each question allows students a certain time limit for answers. Students will check their answers and score points that will qualify them as Cadet, Secret Agent or Master Spy.

Please note that this series was produced in Great Britain, where some terminology and phrases might be different than in the United States. For example, the word "naught" is sometimes used for zero as in 0.2 (naught point two) and "matbs" is used for math.



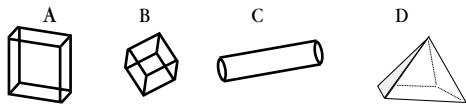
## Secret Mission

Dr. Strangeglove is using his laser-guided Number Jumbler to confuse mankind. It is up to Matt Mattics and his Special Agents to solve two sets of review questions about geometric solids in order to save the world. In the first set of problems, students must compare edges and faces of solids in order to find the figure that is unlike the others. Geometry concepts are extended in the second set of problems as students are asked to examine nets to find the correct net that matches the solid.

## Background Knowledge & Strategies

In order to handle this secret mission, students must have a firm understanding of geometry vocabulary, shapes and solids. Review basic terminology and discuss the parts and shapes that make up the bases and faces of solids. Geometric solids should be made available for student use while viewing this episode. Prepare your Special Agents by using the following sample problems. A question and answer key follows each sample problem.

**Set A:** Identify the shape that is different from the others.



### Strategies:

- Use manipulative solids.
- Describe and count faces, edges, and vertices.
- Draw the faces and determine which shape is represented.

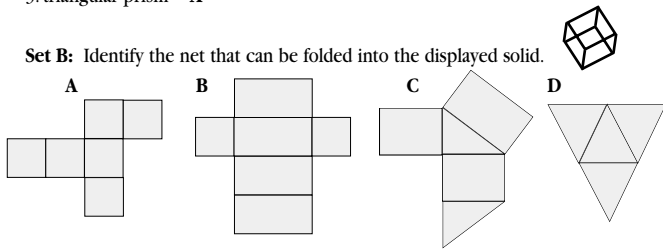
**Answer:** C

### Question & Answer Key for Set A (Answers appear in bold)

Identify the solid that is different from the others in each group displayed in the program.

1. triangular prism = **D**
2. cylinder = **B**
3. triangular prism = **A**
4. triangular prism = **C**
5. icosahedron = **D**

**Set B:** Identify the net that can be folded into the displayed solid.



### Strategies:

- Try to locate the base of the net.
- Match tangrams or pattern pieces to the net.

**Answer:** A

(Continued)

## Question & Answer Key for Set B (Answers appear in bold)

Identify the net displayed in the program that can be folded into the following solids.

1. rectangular prism = **A**
2. hexagonal pyramid = **B**
3. octahedron = **C**
4. square-based pyramid = **A**
5. hexagonal prism = **C**

## Vocabulary

The following words are included for teacher reference and for use with students to refresh and extend the subject matter in the show.

**corner** — The place where two sides meet.

**cone** — A solid figure with one circular base.

**cube** — A solid figure whose six faces are all squares.

**cylinder** — A solid figure with two congruent circular bases.

**face** — The flat surface of a solid.

**edge** — The place where two faces meet.

**geometry** — The study of the shapes and size of things all around us.

**net** — A pattern that can be cut out and folded to make a solid.

**polyhedron** — A solid that has many faces.

**prism** — A solid whose bases lie in parallel planes and whose faces are parallelograms.

**pyramid** — A solid whose base is a polygon and whose faces are triangles with a common vertex.

**solid** — A three-dimensional shape.

**tetrahedron** — A solid with four faces.

**vertex (vertices)** — The corner where two or more edges meet.

## Follow-Up Discussion & Activities

- Discuss the different strategies used by your students to solve these mental math problems.
- Compile a class geometry vocabulary book. Students can use [www.harcourtschool.com/glossary/math\\_advantage/index.html](http://www.harcourtschool.com/glossary/math_advantage/index.html) which offers a glossary filled with definitions and illustrations for many math concepts.
- Creating riddles about solids can make math review fun. Students can write three characteristics about a solid, using information like the number of faces, vertices, or where it can be found in everyday life. Share with the class.
- Nets can be a challenging concept to visualize. Allow students to practice by making their own solids using nets from the Math Forum at [mathforum.org/alejandre/workshops/net.html](http://mathforum.org/alejandre/workshops/net.html).
- Have students explore the volume, or the number of cubic units in a solid, by using manipulative cubes to “fill” a rectangular solid. Transfer that concept to formulas for other solid figures. Direct students to [library.thinkquest.org/20991/geo/solids.html](http://library.thinkquest.org/20991/geo/solids.html) for explanations and formulas to find the volumes and formulas of other solids.