

A Shape is not defined by its shape:



Spatial Sense

Geometry

Space

Shape

Spatial
visualisation

Spatial
perception

Go on a shape walk

Photographs taken by a five year old using a digital camera. He was asked to find some *interesting shapes*.

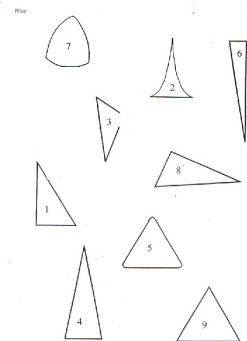


Young Children's Mathematical Thinking

- Understanding
- Assessing
- Developing

H. Properties of Shape

- Holistic recognition of shape
Can recognise resemblances and match some simple shapes, using standard "prototypes".



H. Properties of Shape

- Holistic recognition of shape
Can recognise resemblances and match some simple shapes, using standard "prototypes".
- Classification of shapes, attending to visual features
Can sort and compare shapes, using some geometrical language to describe features.
- Identification of "classes of shapes" by some properties
Uses properties of shapes to classify shapes into classes, using appropriate language

H. Properties of Shape

- Definition of shapes using properties
States and understands necessary and sufficient conditions for defining key shapes.

Sticky Labels

- Each person places a sticky label on the back of someone else who has not seen it.
- To identify the unknown shape ask each other a question that can only be answered by "yes" or "no". (one question per person)
- As you get your clues draw what you think it might be.

Sticky Labels

- Once you have identified your shape, place the sticky label on your front and continue to help others.
- What questions did you find helpful?
- What questions were not helpful?
- What did you notice about your drawing as you gained more information?
- What spatial skills and understandings is this activity assisting children to develop?

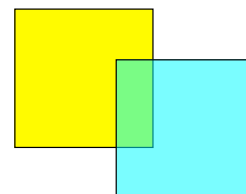
The Overlap Problem

Teaching Children Mathematics
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Begin with two squares – they do not have to be the same size.

Lay the two squares down so they overlap.
What shape do you get from the overlap?



• What shapes can you find?

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- Mathematical understanding is enhanced when a child observes and explores an object; thinks about and tests an idea; and communicates findings or asks questions (Yelland, 1999).

String shapes:

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String shapes

- Using the string, make a shape that has four sides of equal length.
- The shape cannot be a square. The sides across from each other must be parallel.
- Figure out two different ways to test whether your sides are the same length.
- If the shape does not work and you cannot do it, you are going to have to say it's impossible to do and you've got to tell me why.

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Using string, how can you change a square into a triangle? a trapezoid into a square?

Animated shapes

- Animated shapes are shapes that a group makes with string.
- The group starts with one shape, and then one member of the group changes positions to change the shape as the rest stand still.
- First try to visualize the shape and what will happen to it, and then decide who will need to move to make the shape by moving different people, one at a time. (Several moves may be necessary.)
- Try to make the shape by moving the fewest people. Record how you made the shape with drawings or words. Include your starting positions, who moved, and where.

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- 1: Start with a square. End up with a rhombus.
- 2: Start with a quadrilateral. End up with a triangle.
- 3: Start with a rectangle. End up with a shape that has no parallel sides.
- 4: Start with an equilateral shape that has four sides. End up with a shape in which one side is longer than one of the sides next to it.
- 5: Start with an equilateral shape with two pairs of parallel sides. It can be four-sided, but does not have to be. End up with a shape in which only one pair of sides is parallel.
- 6: Start with an equilateral shape with no parallel sides. End up with a shape in which there is only one pair of parallel sides.
- 7: Start with a shape that has two pairs of parallel sides and no sides equal. It cannot be a four-sided shape. End up with an equilateral shape that still has two pairs of parallel sides. You may change the number of sides it has.