

Faces of Three-dimensional Objects are Two-dimensional Shapes.

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Differentiate and Assess

Not every student will be ready to investigate this concept at this Level and so we will need to differentiate to ensure every student is learning at their leading edge. Select the Differentiate button on this screen.

Integrate

Every mathematical concept is integrally related to other mathematical concepts. Teaching and learning related concepts simultaneously develops deep relational understanding. Select the Integrate button on this screen.

Intervene

Some students may not yet be ready to investigate this concept at any Level, and so we will need to provide some intervention. Select the Intervention button on this screen.

FACES OF THREE-DIMENSIONAL OBJECTS ARE TWO-DIMENSIONAL SHAPES.

EXPLICIT TEACHING PLAN OVERVIEW PAGE

THIS PAGE IS A SUMMARY OF THE EXPLICIT TEACHING PLAN, INCLUDING STRATEGIC QUESTIONS, AND DESCRIBING THE SEQUENCE WHICH WILL OCCUR OVER MULTIPLE LESSONS.

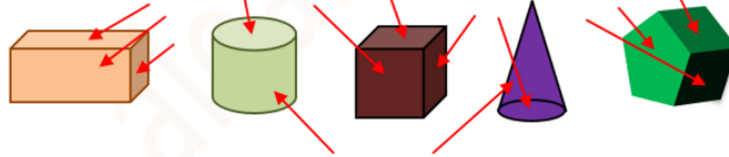
RESOURCES: THREE-DIMENSIONAL OBJECTS WITH FLAT SURFACES INCLUDING PRISMS AND NON-PRISMS, PENCIL, PAPER

WHAT COULD WE DO?

Children:

- identify flat and curved surfaces on three-dimensional objects, for example,

Allow children to identify flat surfaces, for example,



Allow children to identify curved surfaces, for example,

- describe the surfaces of three-dimensional objects with straight lines as faces.
- describe the surfaces of three-dimensional objects with curved lines as flat surfaces.

- describe the flat surfaces and faces of three-dimensional objects as two-dimensional shapes.

WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

Children

- ▶ ask one another questions about surfaces, lines on prisms, cylinders, cones, for example:
 - ▶ Which surfaces are flat?
 - ▶ Which surfaces are curved?
 - ▶ Let's select a three-dimensional object with flat surfaces.
 - ▶ What shape are the flat surfaces on this object?
 - ▶ Are all of the surfaces rectangles?
 - ▶ Do rectangles have straight lines?
 - ▶ If the surface is flat and has straight lines, is the surface a face?
 - ▶ How many dimensions does each face have?
 - ▶ Does each face go up and down, and left to right?
 - ▶ Does each face have 2 dimensions?
 - ▶ Is a rectangle a two-dimensional shape?
 - ▶ Are the faces of this object, two-dimensional shapes?

FACES OF THREE-DIMENSIONAL OBJECTS ARE TWO-DIMENSIONAL SHAPES.

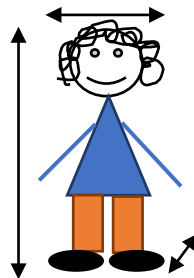
EXPLICIT TEACHING PLAN

FULL EXPLICIT TEACHING PLAN, EMBEDDING DEEP RELATIONAL UNDERSTANDING, METALANGUAGE, AND QUESTIONS THAT MAY BE USED OVER MULTIPLE LESSONS.

WHAT COULD WE DO?

Children think about, talk and listen to a friend about, then have the opportunity to share what they already know.

Indicate the three dimensions on a child, for example,



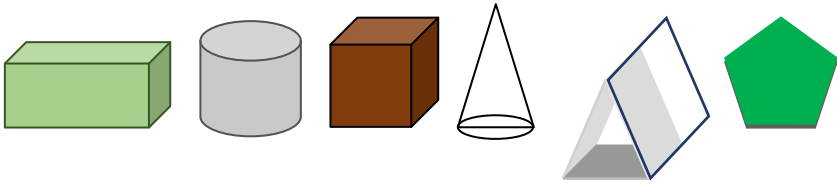
WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

- ▶ Today brings an investigation about two-dimensional shapes and three-dimensional objects.
- ▶ What do you know about two-dimensional shapes and three-dimensional objects?
- ▶ Talk about two-dimensional shapes and three-dimensional objects with a friend.
- ▶ Is anyone ready to share what they are thinking about two-dimensional shapes and three-dimensional objects?

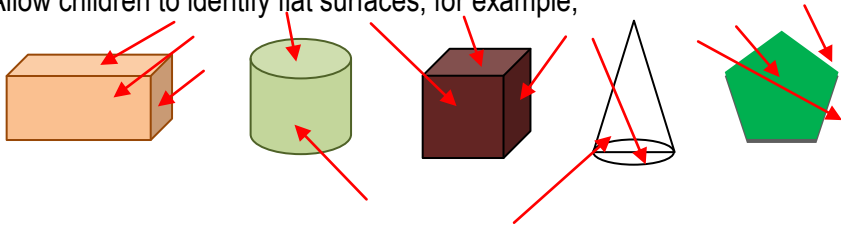
- ▶ We've investigated two-dimensional shapes and three-dimensional objects.
- ▶ And we found that a two-dimensional shape has 2 dimensions.
- ▶ And we found that a three-dimensional object has 3 dimensions.
- ▶ We found that the dimensions are up and down, left to right, and front to back.
- ▶ We found that you have three dimensions, because you go up and down, left to right, and front to back.

- ▶ We've investigated lines on two-dimensional shapes and three-dimensional objects.
- ▶ And we found lines can be either straight or curved.
- ▶ We've investigated surfaces on three-dimensional objects.

Display some three-dimensional objects with flat surfaces, for example,

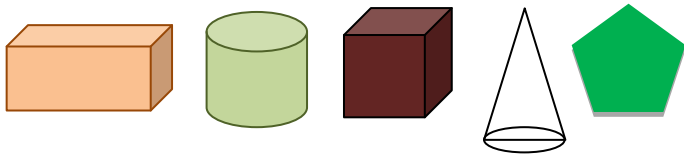


Allow children to identify flat surfaces, for example,



Allow children to identify curved surfaces, for example,

Select the three-dimensional objects with flat surfaces, for example,



Select a three-dimensional object, for example,



Allow the children to identify the shape of each face is a rectangle.

- ▶ And we found that surfaces can be either flat or curved.
- ▶ We found that flat surfaces with straight lines are faces with edges.
- ▶ And we found that prisms have faces.

- ▶ Today we're going to investigate the shapes of flat surfaces on three-dimensional objects.

- ▶ Which surfaces are flat?

- ▶ Which surfaces are curved?
- ▶ Let's select just the three-dimensional objects that have flat surfaces.

- ▶ Let's select a three-dimensional object with flat surfaces.
- ▶ What shape are the flat surfaces on this object?
- ▶ Are all of the surfaces rectangles?
- ▶ Do rectangles have straight lines?

Allow children to identify the 2 dimensions on the face.

Allow children to identify the faces of the object are two-dimensional shapes.

Select another prism, for example,



Allow the children to identify the shapes of the faces are rectangles and pentagons.

Allow children to identify the 2 dimensions on the face.

Allow children to identify the faces of the object are two-dimensional shapes.

Select a three-dimensional object, with a flat surface, that is not a prism, for example,



Allow the children to identify the shape of each flat surface is a circle.

Allow children to identify the 2 dimensions on the flat surface.

- ▶ If the surface is flat and has straight lines, is the surface a face?
- ▶ How many dimensions does each face have?
- ▶ Does each face go up and down, and left to right?
- ▶ Does each face have 2 dimensions?
- ▶ Is a rectangle a two-dimensional shape?
- ▶ Are the faces of this object, two-dimensional shapes?

- ▶ Let's select another three-dimensional object with flat surfaces.
- ▶ What shape are the flat surfaces on this object?
- ▶ Are 5 of the surfaces rectangles, and 2 of the surfaces pentagons?
- ▶ Do rectangles and pentagons have straight lines?
- ▶ If the surface is flat and has straight lines, is the surface a face?
- ▶ How many dimensions does each face have?
- ▶ Does each face have 2 dimensions?
- ▶ Is a rectangle a two-dimensional shape?
- ▶ Is a pentagon a two-dimensional shape?
- ▶ Are the faces of this object, two-dimensional shapes?

- ▶ Let's select another three-dimensional object with flat surfaces.
- ▶ What shape are the flat surfaces on this object?
- ▶ Is each flat surface a circle?
- ▶ Do circles have straight lines?
- ▶ If the surface is flat and has a curved line, is the surface a face or just a flat

surface?

- ▶ How many dimensions does each flat surface have?
- ▶ Does each flat surface have 2 dimensions?
- ▶ Is a circle a two-dimensional shape?
- ▶ Are the flat surfaces of this object, two-dimensional shapes?