Shape and Space

Activity 6 Assessment

Investigating Surface Area of Composite 3-D Objects

Content: Determining Surface Area of Composite 3-D Objects			
Determines surface area of composite 3-D objects made from right prisms "I can determine the surface area of each individual object and since the cube fits right on top of the rectangular prism, I just need to subtract the area of the parts that are covered."	Determines surface area of composite 3-D objects made from right prisms and right cylinders "I can determine the surface area of the rectangular prism and cylinder, then subtract 2 times the area of the circular base of the cylinder."	Creates composite 3-D objects that have a given surface area "When I was creating my 3-D object, I could see that surface area of the triangular prism was 400 cm^2 and the cylinder was 200 cm^2. So, the area of the circle to remove had to be at least 50 cm^2 for the surface area to be less than 500 cm^2."	Solves multi-step problems involving determining the surface area of composite 3-D objects "I used the interactive tool to determine the measurements for the overhang of the cube. I determined that the base of the triangular overlap was 8 cm and the height was 4 cm. So, I had to add back on $2(\frac{1}{2})(8)(4)$ to the total surface area."
Observations/Documentation			

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Competency: Reflecting and Communicating			
Uses formulas to calculate individual surface areas, but does not consider the overlap "I used formulas to calculate the surface area of the prism and cube, then added the areas together."	Explains why parts of the individual 3-D objects are or are not included in the surface area of a composite object "The bottom circular face of the cylinder is now hidden where it connects to the cube. So, I shouldn't include the bottom face of the cylinder in my calculations. That circular shape is also not included on the face of the cube."	Explains process used to calculate the surface area of composite objects "My object is made from a triangular prism and two cylinders. So, I calculate the surface area of each object, then add the areas together. But these circular faces of the cylinders are not included, so I need to subtract 2 of them for the cylinders and 2 of them for the prism."	Identifies and explains strategies used to help keep track of all the parts when determining the surface area of complex objects "I combined a lot of objects to make my composite object. So, to determine the surface area, I made a chart that listed all the faces of each object and which ones would not be included in my surface area calculation."
Observations/Documentation			