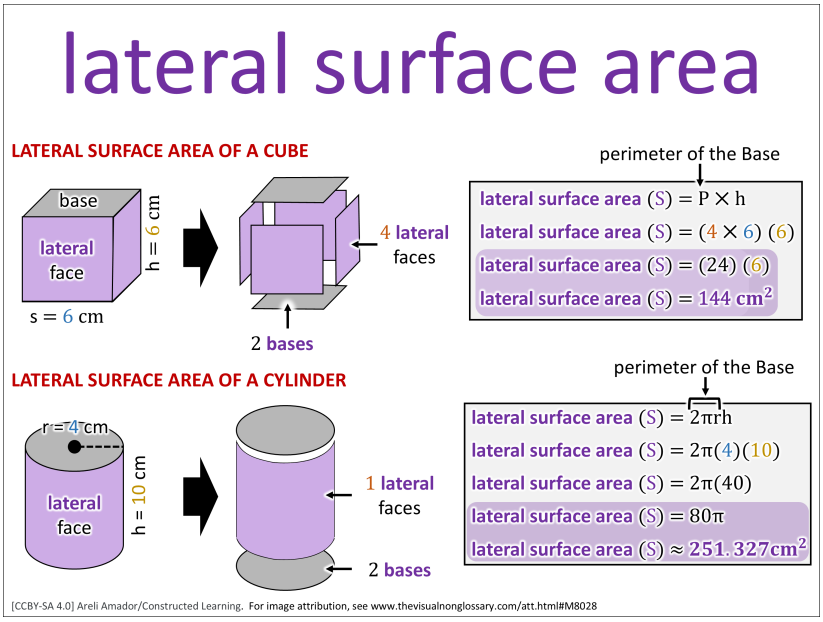
The Visual Non-Glossary™

Lateral Surface Area in Action

The purpose for reading is to learn what lateral surface area is and how to solve it so I can apply it to a real-world problem.

Look Out For:

- Why only the side faces are measured and not the top or bottom
- The formula used to find lateral surface area and what each part represents
- The steps used to solve for lateral surface area in the example



When you wrap paper around a box, you need to know how much paper covers only the sides. This is called **lateral surface area**. It shows how much space covers the sides of a shape, not the top or bottom.

Look at a cube box with a square **base**. First, find the perimeter of the **base**. Each side is 6 cm, so the perimeter is 24 cm. The perimeter is the distance around the bottom, where the lateral faces wrap. Next, find the height. The box is 6 cm tall. Finally, use the formula S = P × h to find the **lateral surface area**. Multiply 24 cm by 6 cm to get 144 cm². This tells you how much paper covers the sides.

A company is making a cylindrical container for oatmeal. The **base** has a radius of 3 cm. The box is 15 cm tall. The formula S = 2πrh finds the **lateral surface area** of a cylinder. The company needs to know how much label paper wraps around the curved side.

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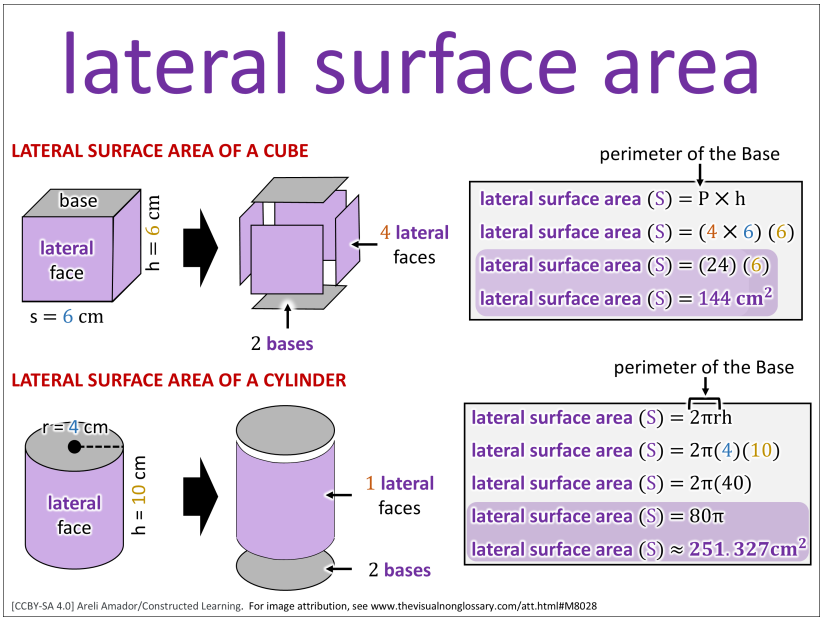

When wrapping paper around a box, printing a label for a can, or covering only the sides of a building, knowing how much material is needed for just the side faces is important. This measurement is called **lateral surface area**, and it tells how much space covers only the sides of a shape, not the top or bottom.

Consider a cube-shaped box with a square **base**. First, the perimeter of the **base** is found by adding all four sides together. Each side measures 6 cm, so the perimeter equals 24 cm, which represents the distance around the bottom of the shape where the lateral faces wrap. Next, the height of the box is measured, which stands 6 cm tall. Finally, the formula S = P × h is used to find the **lateral surface area**, so 24 cm is multiplied by 6 cm to get 144 cm^2. This number shows exactly how much material is needed to cover the side faces, without including the top or bottom.

A company designing a cylindrical container for oatmeal faces a similar task. The container has a **base** with a radius of 3 cm and stands 15 cm tall. The formula S = 2πrh can be used to find the **lateral surface area** of a cylinder. Before printing a

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label that wraps around the curved face of the container, the design team must determine how much space the label will cover.

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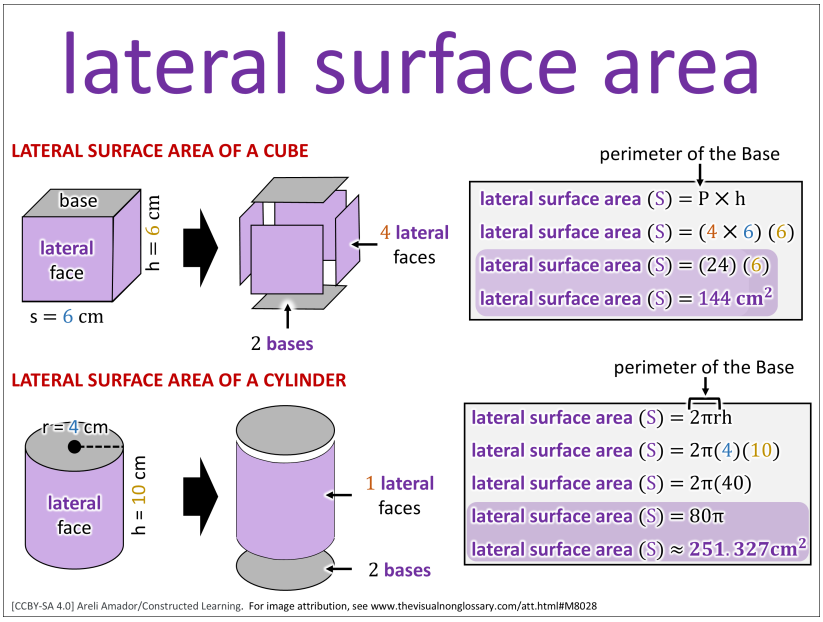

Whether wrapping paper around a box, printing a label for a can, or covering only the sides of a structure, accurately determining how much material is required for the side faces alone is essential. This measurement, known as **lateral surface area**, represents the total space covering only the sides of a shape, excluding the top and bottom.

Consider a cube-shaped box with a square **base**. The perimeter of the **base** is calculated first by summing all four sides; since each side measures 6 cm, the perimeter equals 24 cm, representing the distance encircling the bottom of the shape where the lateral faces wrap. The height of the box, measuring 6 cm, is then incorporated using the formula S = P × h, which determines the **lateral surface area** by multiplying the perimeter by the height. Multiplying 24 cm by 6 cm produces 144 cm^2, indicating precisely how much material is necessary to cover the side faces while excluding the top and bottom.

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A company designing a cylindrical container for oatmeal encounters a comparable challenge. The container features a **base** with a radius of 3 cm and stands 15 cm tall. The formula $S = 2\pi rh$ applies to determining the **lateral surface area** of a cylinder. Prior to printing a label that wraps around the curved face of the container, the design team must calculate how much space the label will cover.