

Space Shuttle Math

Here are fun activities for your students. Duplicate one per student and explore the math of the Space Shuttle.

Mass

On an average mission, the mass of the Space Shuttle Discovery was 2,041,170 kg (4,500,000 lbs) at lift-off.

Complete the chart below to find out how many of each object is needed to equal the same mass. Divide the mass of the space shuttle by the mass of the object.

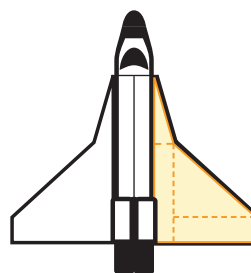
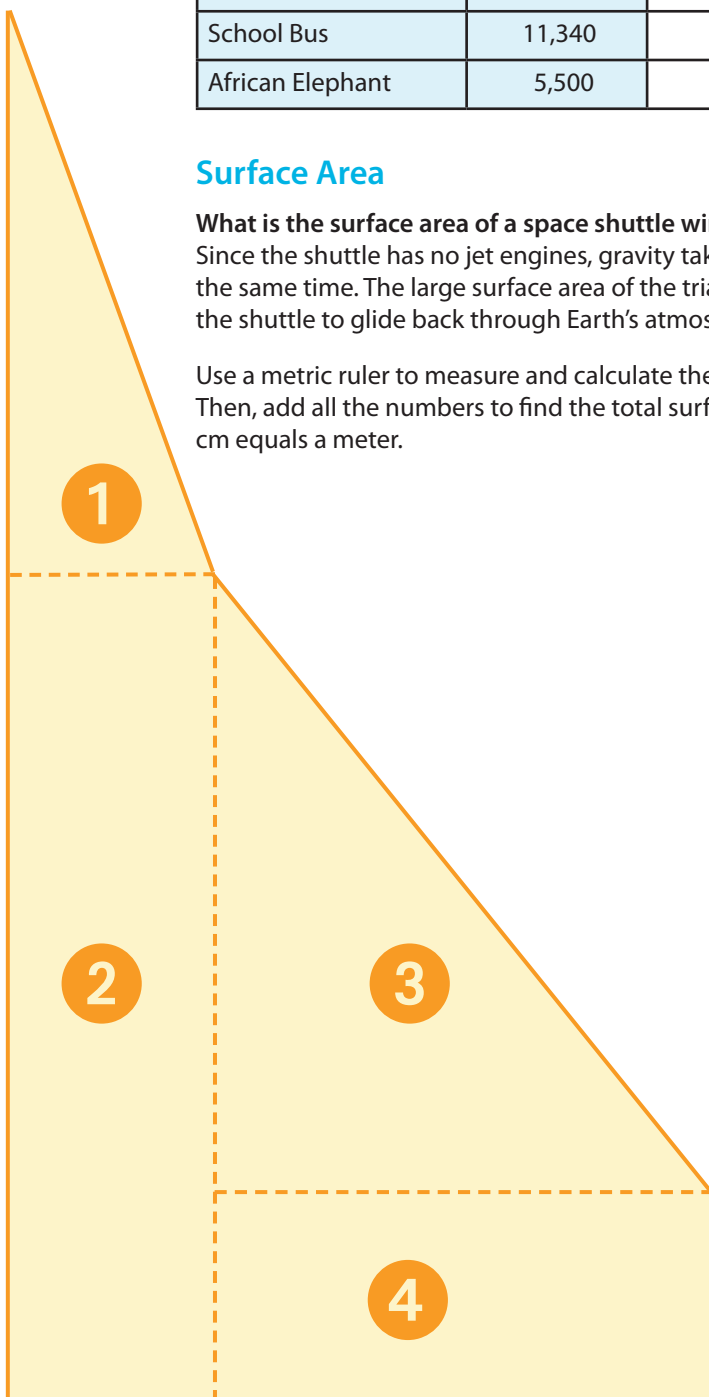
Object	Approximate Mass (kg)	Approximate number of objects to equal the mass of the space shuttle at lift-off
Statue of Liberty	204,117	
Boeing 747 Airplane	158,757	
School Bus	11,340	
African Elephant	5,500	

Surface Area

What is the surface area of a space shuttle wing?

Since the shuttle has no jet engines, gravity takes over pulling the orbiter down and forward at the same time. The large surface area of the triangle-shaped delta wings provide enough lift for the shuttle to glide back through Earth's atmosphere and land on a runway.

Use a metric ruler to measure and calculate the surface area of each shape within the wing. Then, add all the numbers to find the total surface area of the top of a space shuttle wing. Every cm equals a meter.



Formula for a triangle surface area:

$$\frac{\text{base} \times \text{height}}{2}$$

Formula for a rectangle surface area:

$$\text{base} \times \text{height}$$

$$1\text{cm} = 1\text{m}$$