**Lower Elementary:**

*Question:* It takes 5 batteries to power 1 flashlight. It takes 4 batteries to power 1 radio. Which of the following requires more batteries: 3 flashlights and 2 radios ***or*** 4 flashlights and 1 radio?

**Upper Elementary:**

*Question:* Brandon finds 4 kilograms and 520 grams of wood for a campfire. Emma finds 5 kilograms and 410 grams. Luis finds 9 kilograms and 570 grams. How much campfire do they have in total?

**Middle School:**

*Question:* An unroasted marshmallow has a volume 4.1π cubic centimetres. After Andrew roasts the marshmallow over a campfire, its volume is 150% its original volume. What is the post-roast volume of the marshmallow?

**Algebra and Up:**

*Question:* A triangular prism-shaped tent has a rectangular base that is 18 decimetres wide and 24 decimetres long. The isosceles triangular sides have bases that are 18 decimetres wide and edges that are 15 decimetres in length. If all the walls of the tent are pulled perfectly flat, then what is the volume of the tent?

**Lower Elementary:**

*Question:* It takes 5 batteries to power 1 flashlight. It takes 4 batteries to power 1 radio. Which of the following requires more batteries: 3 flashlights and 2 radios ***or*** 4 flashlights and 1 radio?

*Answer:* 4 flashlights and 1 radio

*Solution:* For the first option: 3 flashlights use 5 + 5 + 5 = 15 batteries, and 2 radios use 4 + 4 = 8 batteries. That’s 15 + 8 = 23 batteries in total. For the second option: 4 flashlights use 5 + 5 + 5 + 5 = 20 batteries, and 1 radio uses 4 batteries. That’s 24 batteries in total. Since 24 is more than 23, the second option requires more batteries.

**Upper Elementary:**

*Question:* Brandon finds 4 kilograms and 520 grams of wood for a campfire. Emma finds 5 kilograms and 410 grams. Luis finds 9 kilograms and 570 grams. How much campfire do they have in total?

*Answer:* 19 kilograms and 500 grams

*Solution:* First, let’s add the grams: 520 + 410 + 570 = 1500 grams. Since there are 1000 grams in a kilogram, that’s the same as 1 kilogram and 500 grams. Now, if we add the kilograms, we get 4 + 5 + 9 = 18 kilograms, plus 1 kilogram and 500 grams makes 19 kilograms and 500 grams.

**Middle School:**

*Question:* An unroasted marshmallow has a volume 4.1π cubic centimetres. After Andrew roasts the marshmallow over a campfire, its volume is 150% its original volume. What is the post-roast volume of the marshmallow?

*Answer:* 6.15 cubic centimetres

*Solution:* To find 150% of 4.1π, we can multiply the 1.5 by 4.1 and then by π: 1.5 multiplied by 4.1 is 6.15, and 6.15 multiplied by π is 6.15π. So, the volume of the roasted marshmallow is 6.15 cubic centimetres.

**Algebra and Up:**

*Question:* A triangular prism-shaped tent has a rectangular base that is 18 decimetres wide and 24 decimetres long. The isosceles triangular sides have bases that are 18 decimetres wide and edges that are 15 decimetres in length. If all the walls of the tent are pulled perfectly flat, then what is the volume of the tent?

*Answer:* 2592 cubic decimetres

*Solution:* We’re missing the height of the tent. To find it, we can take a right triangular half of an isosceles triangular side of the tent. One leg is half of 18 decimetres, so nine decimetres, and the hypotenuse is 15 decimetres, so the other leg---the height of the tent---is 12 decimetres. So, the area of that face of the tent is 0.5 × 18 × 12 = 108 square decimetres. The length of the tent is 24 decimetres, so its total volume is 108 × 24 = 2592 cubic decimetres.