**Lower Elementary:**



*Question:* The tippy top of a tree is 30 metres from the ground. A squirrel climbs 18 metres up the trunk from the ground. Is the squirrel more or less than halfway up the tree?

**C:\Users\jane.adams\AppData\Local\Microsoft\Windows\INetCache\Content.Word\robin.pngUpper Elementary:**

*Question:* A robin builds its nest out of 1/10 of a kilogram of grass, 1/10 of a kilogram of twigs, and 1/10 of a kilogram of mud. The robin weighs 3/20 of a kilogram. Its clutch of 4 eggs weighs 25 grams. How many grams does the nest weigh with all of its occupants inside?

**C:\Users\jane.adams\AppData\Local\Microsoft\Windows\INetCache\Content.Word\chipmunk.pngMiddle School:**

*Question:* A chipmunk has enough space in its cheeks to store 36 beechnuts, 18 almonds, or 9 walnuts. If the chipmunk fills its cheeks with enough nuts so that each type of nut takes up the same amount of space, then how many nuts does the chipmunk have in total?

**Algebra and Up:**

*Question:* Raccoons are omnivorous animals that frequently develop “favourite foods” as they get older. A group of 5 raccoon kits eats acorns, walnuts, plums, strawberries, blueberries, blackberries, worms, beetles, snails, fish, and bird eggs. By the time the kits are adults, they each have a different favourite food. How many different combinations of favourite foods can the raccoons have? (A “kit” is a baby raccoon.)

**Lower Elementary:**

*Question:* The tippy top of a tree is 30 metres from the ground. A squirrel climbs 18 metres up the trunk from the ground. Is the squirrel more or less than halfway up the tree?

*Answer:* more than halfway

*Solution:* Half of 30 is 15. So, if the squirrel climbs 18 metres up the trunk, it is more than halfway up the tree because 18 is more than 15.

**C:\Users\jane.adams\AppData\Local\Microsoft\Windows\INetCache\Content.Word\robin.pngUpper Elementary:**

*Question:* A robin builds its nest out of 1/10 of a kilogram of grass, 1/10 of a kilogram of twigs, and 1/10 of a kilogram of mud. The robin weighs 3/20 of a kilogram. Its clutch of 4 eggs weighs 25 grams. How many grams does the nest weigh with all of its occupants inside?

*Answer:* 10 ounces

*Solution:* A kilogram is 100 grams. So, a gram is 1/1000 of a kilogram. The nest weighs 1/10 + 1/10 + 1/10 = 3/10 = 300/1000 of a kilogram, or 300 grams. The robin weighs 3/20 of a kilogram, or 150 grams. The 4 eggs weigh another 25 grams. So, the nest and all its occupants weigh a total of 300 + 150 + 25 = 475 grams.

**C:\Users\jane.adams\AppData\Local\Microsoft\Windows\INetCache\Content.Word\chipmunk.pngMiddle School:**

*Question:* A chipmunk has enough space in its cheeks to store 36 beechnuts, 18 almonds, or 9 walnuts. If the chipmunk fills its cheeks with enough nuts so that each type of nut takes up the same amount of space, then how many nuts does the chipmunk have in total?

*Answer:* 21 nuts

*Solution:* To solve this problem, we need to how many nuts of each type would fill 1/3 of the space in the chipmunk’s cheeks. If 36 beechnuts take up all the space, then 1/3 × 36 = 12 beechnuts take up 1/3 of the space. If 18 almonds take up all the space, then 1/3 × 18 = 6 almonds take up 1/3 of the space. If 9 walnuts take up all the space, then 1/3 × 9 = 3 walnuts take up 1/3 of the space. If the chipmunk fills its cheeks so that each type of nut takes up the same amount of space, it has a total of 12 + 6 + 3 = 21 nuts.

**Algebra and Up:**

*Question:* Raccoons are omnivorous animals that frequently develop “favourite foods” as they get older. A group of 5 raccoon kits eats acorns, walnuts, plums, strawberries, blueberries, blackberries, worms, beetles, snails, fish, and bird eggs. By the time the kits are adults, they each have a different favourite food. How many different combinations of favourite foods can the raccoons have? (A “kit” is a baby raccoon.)

*Answer:* 55,440

*Solution:* There are 11 possible favourite foods available to the 5 raccoons. So, if each one develops a different favourite, that means that the first one has 11 options, the second has 10 options, the third has 9 options, the fourth has 8 options, and the fifth has 7 options. That means there are 11 × 10 × 9 × 8 × 7 = 55,440 different combinations of favourite foods for the raccoons.