**Lower Elementary:**



*Question:* The tippy top of a tree is 50 feet from the ground. A squirrel climbs 28 feet 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 1/8 of a pound of grass, 1/8 of a pound of twigs, and 1/8 of a pound of mud. The robin weighs 3/16 of a pound. Its clutch of 4 eggs weighs an ounce. How many ounces 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 “favorite 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 favorite food. How many different combinations of favorite foods can the raccoons have? (A “kit” is a baby raccoon.)

**Lower Elementary:**

*Question:* The tippy top of a tree is 50 feet from the ground. A squirrel climbs 28 feet up the trunk from the ground. Is the squirrel more or less than halfway up the tree?

*Answer:* more than halfway

*Solution:* Half of 50 is 25. So, if the squirrel climbs 28 feet up the trunk, it is more than halfway up the tree because 28 is more than 25.

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

*Question:* A robin builds its nest out of 1/8 of a pound of grass, 1/8 of a pound of twigs, and 1/8 of a pound of mud. The robin weighs 3/16 of a pound. Its clutch of 4 eggs weighs an ounce. How many ounces does the nest weigh with all of its occupants inside?

*Answer:* 10 ounces

*Solution:* A pound is 16 ounces. So, an ounce is 1/16 of a pound. The nest weighs 1/8 + 1/8 + 1/8 = 3/8 = 6/16 of a pound, or 6 ounces. The robin weighs 3/16 of a pound, or 3 ounces. The 4 eggs weigh another ounce. So, the nest and all its occupants weigh a total of 6 + 3 + 1 = 10 ounces.

**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 “favorite 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 favorite food. How many different combinations of favorite foods can the raccoons have? (A “kit” is a baby raccoon.)

*Answer:* 55,440

*Solution:* There are 11 possible favorite foods available to the 5 raccoons. So, if each one develops a different favorite, 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 favorite foods for the raccoons.