**Lower Elementary:**

*Question:* A protocol droid and a utility droid are both trying to reach an escape pod so that they can get away from an evil imperial spacecraft. The protocol droid walks at a speed of 2 km/h. The utility droid rolls at a speed of 5 km/h. If they start from the same place, then which one will reach the escape pod first? How can you tell?

**Upper Elementary:**

*Question:* Dejarik is a game played on a circular board. The game is for 2 players, and each player starts the game with 4 game pieces on the board. Each game piece takes up a single space on the board, which has 25 spaces in total. What percentage of the spaces are occupied if both players have all their game pieces in play?

**Middle School:**

*Question:* A smuggler’s starship navigates a shortcut through space to make the Kessel Run in 12 parsecs. The usual Kessel Run smuggling route is 18 parsecs. If a parsec is 3.26 light-years and a light-year is 9.46 trillion kilometres, then by how many trillions of miles does the smuggler shorten the Kessel Run? Round your answer to the nearest trillion miles.

**Algebra and Up:**

*Question:* A Space knight swings her laser sword in a full circle around her body. The laser sword’s energy blade is 3 metres in length. The Space knight holds the laser sword so that the blade emits from the hilt 4 metres from the center of the circle. Find the area in which the laser sword’s blade slices through the air.

**Lower Elementary:**

*Question:* A protocol droid and a utility droid are both trying to reach an escape pod so that they can get away from an evil imperial spacecraft. The protocol droid walks at a speed of 2 km/h. The utility droid rolls at a speed of 5 km/h. If they start from the same place, then which one will reach the escape pod first? How can you tell?

*Answer:* the utility droid

*Solution:* The faster droid will reach the escape pod first. Since 5 is more than 2, we can tell that 5 km/h is faster than 2 km/h. So, since the utility droid rolls at a speed of 5 km/h, it will reach the escape pod first.

**Upper Elementary:**

*Question:* Dejarik is a game played on a circular board. The game is for 2 players, and each player starts the game with 4 game pieces on the board. Each game piece takes up a single space on the board, which has 25 spaces in total. What percentage of the spaces are occupied if both players have all their game pieces in play?

*Answer:* 32%

*Solution:* If each player has 4 pieces on the board, then there are 4 × 2 = 8 pieces on the board in total. Since there are 25 spaces on the board, 8/25 of the spaces are occupied. We can turn the fraction into a percent by multiplying both the numerator and denominator by 4, since percentages are out of 100: 8/25 × 4/4 = 32/100 = 32%.

**Middle School:**

*Question:* A smuggler’s starship navigates a shortcut through space to make the Kessel Run in 12 parsecs. The usual Kessel Run smuggling route is 18 parsecs. If a parsec is 3.26 light-years and a light-year is 9.46 trillion kilometres, then by how many trillions of kilometres does the smuggler shorten the Kessel Run? Round your answer to the nearest trillion kilometres.

*Answer:* 115 trillion miles

*Solution:* Since the usual Kessel Run smuggling route is 18 parsecs and the smuggler’s starship makes it in 12 parsecs, the smuggler shortens the Kessel Run by 18 – 12 = 6 parsecs. Next, we convert 6 parsecs to trillions of kilometres by multiplying by the conversion rates: 6 parsecs × 3.26 light-years per parsec × 9.46 trillion kilometres per light year ≈ 185 trillion kilometres.

**Algebra and Up:**

*Question:* A Space knight swings her laser sword in a full circle around her body. The laser sword’s energy blade is 3 metres in length. The Space knight holds the laser sword so that the blade emits from the hilt 4 metres from the center of the circle. Find the area in which the laser sword’s blade slices through the air.

*Answer:* 33π square metres

*Solution:* To find the area in which the blade slices through the air, we find the area of a circle whose radius is 3 + 4 = 7 metres, then subtract the area of a circle whose radius is 4 metres for the space inside the circle where the laser sword’s blade doesn’t touch. The area of the full circle is π***r***2 = π(7)2 = 49π, and the area of the circle inside is π(4) 2 = 16π, so the area inside is 49π – 16π = 33π square metres.