Preliminary Planning Sheet

Dog Years

Domain: Operations and Algebraic Thinking
Standard: 4.OA.A.2
Math Practices: MP.1 MP.3 MP.4 MP.5 MP.6

Major Underlying Mathematical Concepts
• Multiplicative comparison
• Number sense to 28

Possible Problem Solving Strategies/Representation
• Model (manipulatives)
• Diagram/Key
• Table
• Number line

Possible Mathematical Vocabulary/Notation
• Model
• Diagram/Key
• Table
• Number line
• Pattern
• Multiple
• Odd/Even
• Per
• Year, month, day
• Ordinal numbers: 8th, 9th, 10th ...
• Total/Sum
• Dozen

Possible Solution(s)

Answer
In dog years, Shep will be 28 years old on Mason’s 12th birthday.

\[
\begin{align*}
\text{Mason's Birthday} & \quad \text{Shep's Age in Dog Years} \\
8th & \quad \text{Just Born} \\
9th & \quad 7 \\
10th & \quad 14 \\
11th & \quad 21 \\
12th & \quad 28
\end{align*}
\]

Rule
\[7 \cdot p = d\]

Possible Connections
• Patterns: Mason’s age +1, Shep’s age in dog years +7.
• Continue to find Mason and Shep’s ages after Mason’s 12th birthday.
• Rule for Shep: \(7 \cdot \text{“people years”} = \text{dog years}, 7 \cdot p = d\).
• If a dog is a dozen people years old, the dog is 84 years old. Dogs don’t tend to live as long as people.
• Relate to a similar task and state a math link.
• Solve more than one way to verify the answer.