Apple Snails Problem (grade 3)

Context

First, during the weeks discussing conservation in Science, Apple Snails should be introduced as an invasive species that can cause much harm to ecosystems, human food sources, and economies. In light of this discussion, these exemplars have great weight.

Task

Apple Snails usually lay 300 eggs at a time. They do this once a week for three weeks. It takes two weeks for the babies to hatch. How many baby snails would be hatched from two adult female Apple Snails? How many weeks would it take for them all to be hatched?

Alternative Versions of Task

More Accessible Version

Apple Snails usually lay 300 eggs at a time. They do this once a week for three weeks. How many baby snails would be hatched from two adult female Apple Snails?

More Challenging Version

Apple Snails usually lay between 1 to 600 eggs at a time. They do this once a week for three weeks. It takes two weeks for the babies to hatch. What is the range of baby snails that could be hatched from two adult female Apple Snails? How many weeks would it take for them all to be hatched?

What will we learn about the student?

From this exemplar we will learn about the students' ability to solve problems using words, #s, and diagrams. They will solve multi-step problems, analyze elapsed time, and put to use the concept of "range" (from data unit).

Standards

MCC3.OA.8 Solve problems involving the four operations, and identify and explain patterns in arithmetic.

MCC3.MD.1 Solve word problems involving addition and subtraction of time intervals, i.e: by representing the problem on a number line diagram.

MCC3.MD.5 Solve one and two step problems by interpreting data.

Standards for Mathematical Practice

1.Make sense of problems and persevere in solving them.

3.Construct viable arguments and critiques the reasoning of others.

6.Attend to precision.

Novice	No strategy is chosen or a strategy is chosen that will not lead to a solution. Little or no evidence of engagement in the task. Neither correct reasoning nor justification for reasoning is present. Little or no communication of an approach is evident with mathematical language. No connections are made. No attempt is made to construct mathematical representations.
Apprentice	A partially correct strategy is chosen. Evidence of previous knowledge. Arguments are made with some mathematical basis. Some formal math language is used, and examples are provided to communicate ideas. Some effort is made to relate to own interests and experiences. An attempt is made to construct mathematical representations to record and communicate problem solving.
Practitioner	A correct strategy is chosen. Evidence of applying prior knowledge is present. Arguments are constructed with adequate mathematical knowledge. Systematic approach or correct reasoning is present. Precise math language is used with audience in mind. Mathematical connections are recognized. Appropriate mathematical are presentations are used.
Expert	An efficient strategy is used. A correct answer is given. Evidence is used to justify and support decisions. Precise math language is used to communicate to an appropriate audience. Mathematical connections or observations are used to extend the solution. Abstract or symbolic mathematical representations are constructed to analyze relationships, extend thinking and clarify or interpret phenomenon.