Unit 8 Lesson 10: Designing Simulations

1 Number Talk: Division (Warm up)

Student Task Statement

Find the value of each expression mentally.

$(4.2 + 3) \div 2$

$(4.2 + 2.6 + 4) \div 3$

$(4.2 + 2.6 + 4 + 3.6) \div 4$

$(4.2 + 2.6 + 4 + 3.6 + 3.6) \div 5$

2 Breeding Mice

Student Task Statement

A scientist is studying the genes that determine the color of a mouse's fur. When two mice with brown fur breed, there is a 25% chance that each baby will have white fur. For the experiment to continue, the scientist needs at least 2 out of 5 baby mice to have white fur.

To simulate this situation, you can flip a coin twice for each baby mouse.

- If the coin lands heads up both times, it represents a mouse with white fur.
- Any other result represents a mouse with brown fur.

1. Simulate 3 litters of 5 baby mice and record your results in the table.

	mouse 1	mouse 2	mouse 3	mouse 4	mouse 5	Do at least 2 have white fur?
simulation 1						
simulation 2						
simulation 3						

2. Based on the results from everyone in your group, estimate the probability that the scientist's experiment will be able to continue.

3. How could you improve your estimate?

3 Designing Simulations

Student Task Statement

Your teacher will give your group a paper describing a situation.

1. Design a simulation that you could use to estimate a probability. Show your thinking. Organize it so it can be followed by others.

2. Explain how you used the simulation to answer the questions posed in the situation.