Problem Pikelets

Technologists use functional models and prototypes to evaluate outcomes and identify problems before manufacturing on a large scale.

Activity One

Piripi, Ben, Maia, and Helen are making pikelets for a year 5 afternoon tea. They all use the same 25-pikelet recipe, but none of them are very accurate in their measuring.

1. The first batch of pikelets Piripi makes are lumpy, Ben's are runny, Helen's are too sweet, and Maia's have lots of holes in them. Discuss with a classmate which wrongly measured ingredient would cause each pikelet problem.

Pikelet ingredients:

1 egg,

$\frac{1}{4}$ cup sugar,

1 cup flour,

1 teaspoon baking powder,

$\frac{3}{4}$ cup milk

I thought extra baking powder would make them rise more.

Perhaps there's a reason why the ingredients are listed in fixed amounts!

2. a. Based on this recipe, how many cups of milk would you need for a batch of 100 pikelets?
   b. How could the recipe be adapted to make 400 pikelets?
   c. If you use $\frac{1}{4}$ cup of sugar for 25 pikelets, how many pikelets could you make with $1\frac{3}{4}$ cups of sugar?

Activity Two

1. a. If Piripi allows 3 pikelets per person, how many batches of 25 pikelets does he need to feed a group of 15 people?
   b. If 8 people in the group want 4 pikelets instead of 3, how many batches will Ben need to make?

2. Piripi thinks it's taking too long to cook 4 pikelets at a time. He decides to cook giant pikelets in his round 4-pikelet pan and then cut them into 4 parts.

> I used the same recipe, but I've only made 4 giant pikelets, and I'm nearly out of mixture!

a. Based on his comment, how many standard pikelets is 1 giant pikelet equal to?
b. What fraction of a giant pikelet should Piripi give to people who want:
   i.   3 standard pikelets?
   ii. 4 standard pikelets?
   iii. 10 standard pikelets?

Focus   Scaling amounts of ingredients