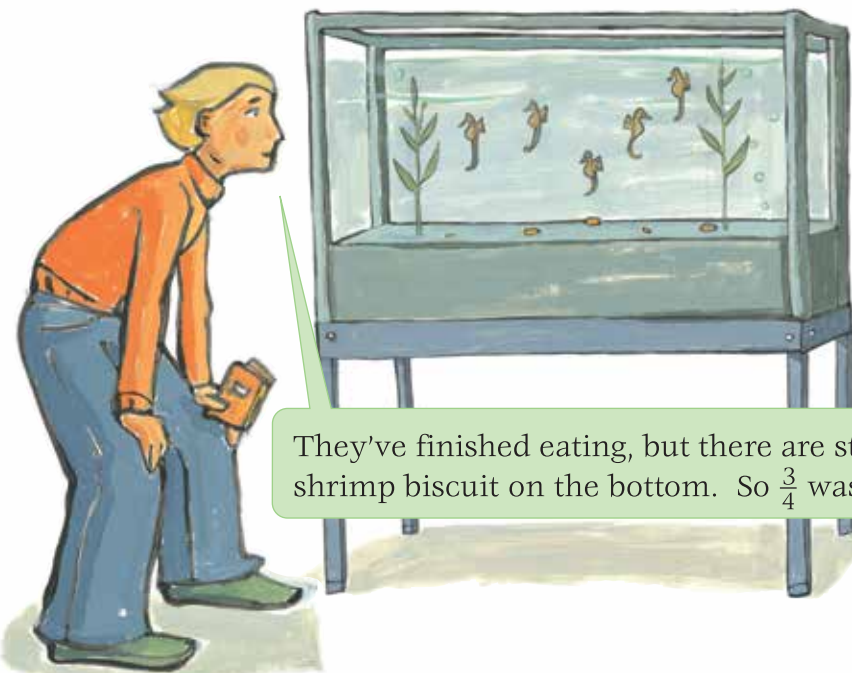# Fishy Fractions

Activity One

Every day, Kylie feeds her sea horses. It's hard to get the amount of food right. One day, she feeds the sea horses in one of her tanks $\frac{3}{4}$ of a shrimp biscuit.

Shrimp biscuit

They've finished eating, but there are still pieces of the shrimp biscuit on the bottom. So $\frac{3}{4}$ was too much.

The next day, Kylie feeds the sea horses $\frac{1}{2}$ of a shrimp biscuit.
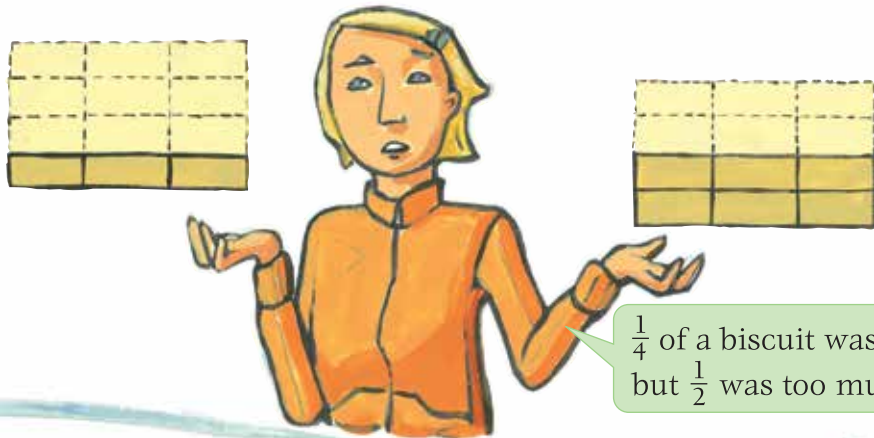
It's either a feast or a famine,

Kylie!

The day after that, the sea horses were very hungry. $\frac{1}{2}$ of a biscuit was too little.

1. What fraction of a shrimp biscuit should Kylie feed the sea horses in this tank each day? Explain your answer.
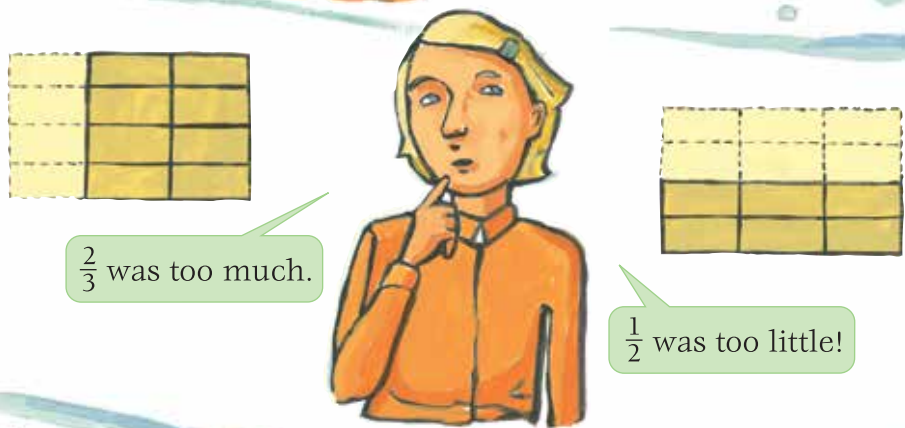
Finding a fraction between two other fractions

2. Kylie has other tanks with different numbers and sizes of sea horses. Help her find the right fraction of a shrimp biscuit for each tank.

a.

$\frac{1}{4}$ of a biscuit was too little, but $\frac{1}{2}$ was too much.

b.

$\frac{2}{3}$ was too much.

$\frac{1}{2}$ was too little!

c.

$\frac{5}{6}$ was too much.

$\frac{2}{3}$ was too little.

d.

$1\frac{1}{3}$ biscuits was too little.

$1\frac{1}{2}$ biscuits was too much!

3. What strategies did you use to find the "in-between" fractions?

Activity Two

Kylie's research into finding exactly the right amount of food for sea horses means she must investigate "in-between" fractions.

She keeps a record of the food she gives each tank. Here is part of her record for one of her tanks:

I need a fraction between $\frac{2}{3}$ and $\frac{3}{4}$. Maybe my friends can help.

Tank 3		
Day	Fraction of shrimp biscuit	Result
Monday	$\frac{3}{4}$	Too much
Tuesday	$\frac{2}{3}$	Too little
Wednesday		

Tues Mon

$\frac{2}{3}$ $\frac{3}{4}$

1. Answer Kylie's questions about her friends' strategies.

a.

I change both fractions to decimals. $\frac{2}{3}$ is $0.\dot{6}$. $\frac{3}{4}$ is 0.75. So 0.7 or $\frac{7}{10}$ will work.

Charu

Yes, but what does $\frac{7}{10}$ of a shrimp biscuit look like?

b.

Well, $\frac{2}{3}$ is $\frac{8}{12}$, that's 8 pieces of a biscuit. $\frac{3}{4}$ is $\frac{9}{12}$, that's 9 pieces. So $\frac{8\frac{1}{2}}{12}$ must work.

Chris

Yes, but what fraction is $\frac{8\frac{1}{2}}{12}$?

Finding a fraction between two other fractions

c.

I add both fractions, then divide by 2. It's like an average. $\frac{2}{3} + \frac{3}{4} = \frac{8}{12} + \frac{9}{12}$
$$= \frac{17}{12}$$
Then I divide by 2.

Hannah

So what's that? $\frac{1}{2}$ of $\frac{17}{12}$?

d.

I find the middle of the numerators and denominators.
Halfway between 2 and 3 is $2\frac{1}{2}$.
Halfway between 3 and 4 is $3\frac{1}{2}$.
$\frac{2\frac{1}{2}}{3\frac{1}{2}}$ should work. If I double both the numerator and the denominator, that's $\frac{5}{7}$.

Vaitoa

Is $\frac{5}{7}$ between $\frac{2}{3}$ and $\frac{3}{4}$?

2. Which friends have strategies that are very similar?

3. Use each of the four friends' strategies to find fractions that are between:

a. $\frac{5}{4}$ and $\frac{6}{4}$

b. $2\frac{3}{4}$ and $2\frac{7}{8}$.