Beefing up Business

Key financial ideas

- An increase in demand or a decrease in supply can affect prices.
- Before profit can be calculated, costs have to be tracked and recorded.

You need: Internet access (optional), a calculator, a classmate

ACTIVITY

Jessica lives on a dairy farm near Christchurch. Every year, her family earns money by raising bobby calves. For the last 3 years, Jessica has been raising calves as part of her savings plan to pay for her university study in 5 years' time.

Calves are usually born on New Zealand dairy farms from the middle of July onwards. They are sold when they are 3 days old so that their mothers can continue producing milk for the farmer to sell to the dairy company. The people who buy the calves take over the job of feeding them the milk they need to help them grow.

Jessica aims to buy 50 calves this year, but that will depend on price. Her stock agent, Jim Hogan, will help her to find the calves she wants.

1. Why might calf prices be higher this year than last year?

2. Jessica has kept records of how much she has paid for the calves she has bought over the last 3 years. The amounts include the $10 per calf that she pays Jim Hogan.

Year	Year 1		Year 2		Year 3	
Breed	Number of calves	Total cost	Number of calves	Total cost	Number of calves	Total cost
Friesian–Jersey cross	10	$850	20	$1,600	20	$1,500
Friesian	10	$1,200			10	$1,150
Hereford–Friesian cross			10	$1,800	10	$1,600

a. How much money has Jessica paid Jim Hogan for all the calves he has purchased for her over the last 3 years?

b. **i.** Order the breeds from the cheapest to the dearest to buy.

ii. Discuss with a classmate why some breeds are dearer than others. If you don't know, do some research on the Internet to find out.

c. Based on a rise of 10–15 percent of the year 3 costs above, how much can Jessica expect to pay for a calf of each breed this year?

d. Jessica wants to spend no more than $5,500 in total (including Jim's fee) on her 50 calves. How many of each breed could she buy?

e. Jessica buys her 50 calves, and Jim arranges transport to the family farm. The total cost for trucking the calves is $575. What is the cost per calf for the transport?

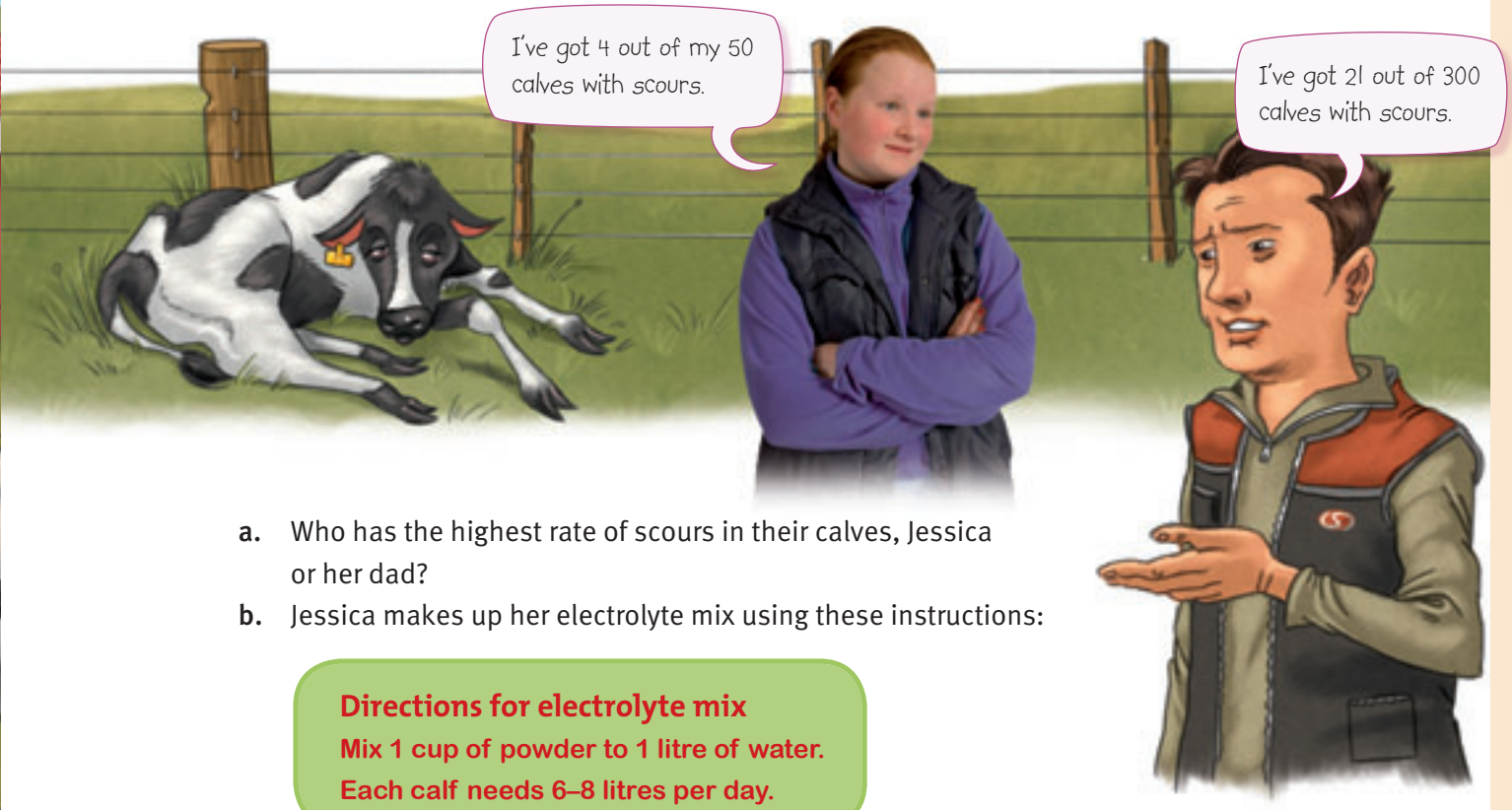
3. Feeding the calves and keeping them healthy takes a lot of work. Most calves cope with a diet of powdered milk, meal, and some hay.

   Milk powder comes in bags of 20 kilograms. It takes 135 grams of powder mixed with water to make 1 litre of milk. Calves drink a litre of milk per day for the first 10 days after they are weaned from their mother.

   a. How many litres of milk can Jessica make from 1 bag of powder?

   b. How many bags of milk powder will Jessica's 50 calves go through in their first 10 days?

4. Not all of Jessica's calves stay healthy. About 5 percent of calves develop scours (diarrhoea) and need to drink electrolytes for a few days until their stomachs mature.



   a. Who has the highest rate of scours in their calves, Jessica or her dad?

   b. Jessica makes up her electrolyte mix using these instructions:

> **Directions for electrolyte mix**
> **Mix 1 cup of powder to 1 litre of water.**
> **Each calf needs 6–8 litres per day.**

   How many litres of electrolyte will Jessica need to mix up each day?

   c. Each cup holds 150 grams of electrolyte powder. How many kilograms of powder will Jessica use in the first 3 days?

5. Jessica also has 7 calves with nasal infections. To recover, they each need a daily dose of 5 millilitres of penicillin for 3 days. Jessica has a 100 millilitre bottle that cost her $26.00.
   a. Does she have enough penicillin?
   b. What does each dose of 5 millilitres cost?

6. Jessica and her dad are discussing the best way to feed all of the calves.

   a. What fraction of all the calves are Jessica's?
   b. Would it be fair for Jessica to do that fraction of the feeding?
   c. How many feeds and/or days should Jessica help Dad? Explain your answer.

Reflective question

- Would Jessica be able to make money out of calves without Dad's help?