

# Good as Gold

You need  a classmate

## Activity

Waihi Watson was a gold miner in New Zealand during the 1860s.

We gold miners measure gold in ounces (oz for short).  
1 ounce is about 30 grams.

Waihi weighed his gold twice a day at the diggings. He didn't want anyone else to know how much gold he'd found altogether, so he only filled in some of the amounts on his tally sheet. (He knew the other miners weren't very good at using number strategies!)


His first week's tally sheet looked like this:

	1st find		2nd find		Total for day
Monday	<input type="text"/> oz	+	32 oz	=	2 x 32 oz
Tuesday	40 oz	+	<input type="text"/> oz	=	90 oz - 30 oz
Wednesday	<input type="text"/> oz	+	54 oz	=	64 oz + 20 oz
Thursday	39 oz	+	<input type="text"/> oz	=	89 oz - 10 oz
Friday	<input type="text"/> oz	+	35 oz	=	200 oz ÷ 4
Saturday	42 oz	+	<input type="text"/> oz	=	100 oz - 28 oz


- E** a. What were Waihi Watson's  finds for each day? Show how you worked them out. Discuss your strategies with a classmate.


Thursday's 89 oz is nearly 90 oz ...

- b. i. Overall, did Waihi find more gold in the first finds or the second finds?  
ii. Discuss the strategies you used to add up the finds with a classmate.

2. For the second week, Waihi Watson changed the code he used. Whenever he used , it stood for the same amount. He used  to stand for different amounts. This is what his new tally sheet looked like:

Monday	$25 \text{ oz} + \text{bag icon} \text{ oz} + 25 \text{ oz} = 50 \text{ oz} - \text{bag icon} \text{ oz}$
Tuesday	$\square \text{ oz} + \text{bag icon} \text{ oz} + 33 \text{ oz} = 70 \text{ oz} - \text{bag icon} \text{ oz}$
Wednesday	$\square \text{ oz} + \text{bag icon} \text{ oz} + 20 \text{ oz} = 82 \text{ oz} - \text{bag icon} \text{ oz}$
Thursday	$29 \text{ oz} + \text{bag icon} \text{ oz} + \square \text{ oz} = 61 \text{ oz} - \text{bag icon} \text{ oz}$
Friday	$15 \text{ oz} + \text{bag icon} \text{ oz} + 45 \text{ oz} = \square \text{ oz} - \text{bag icon} \text{ oz}$
Saturday	$\text{bag icon} \text{ oz} + 36 \text{ oz} + 15 \text{ oz} = \square \text{ oz} - \text{bag icon} \text{ oz}$

- a. What could  be? Explain your answer.  
b.

Now that I know what  is, I can work out  for each day.

Complete the equations for each day.

3. Make up your own hidden tally problems for Waihi Watson's first and second gold finds for his third week at the diggings. Use a  to stand for the unknown amount in each equation. Give the problems to a classmate to solve. Discuss them with your classmate afterwards.
4. Without using the word "equals", write in your own words what the = sign means.

