

# Spoilt for Choice

You need  a classmate

## Activity

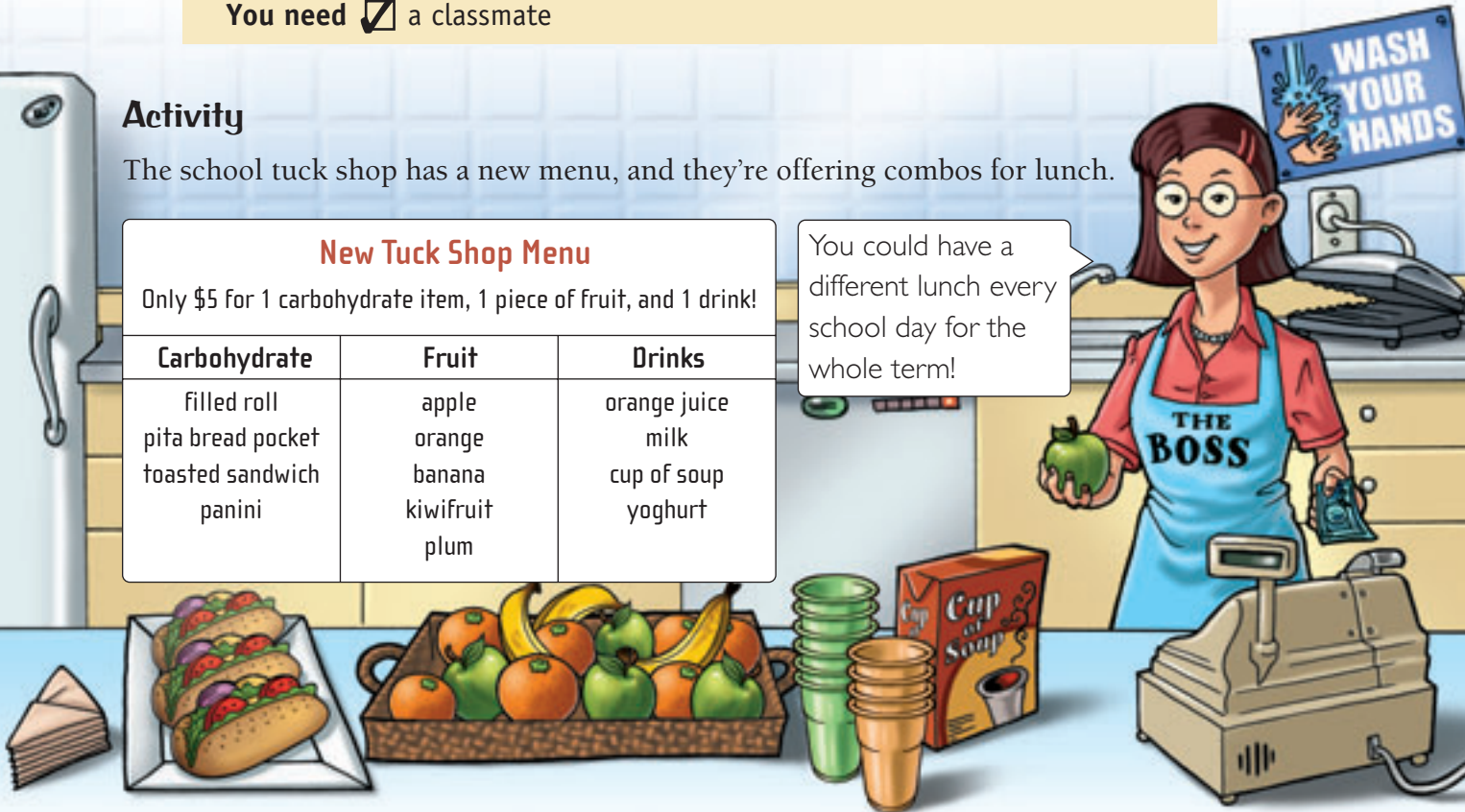
The school tuck shop has a new menu, and they're offering combos for lunch.

### New Tuck Shop Menu

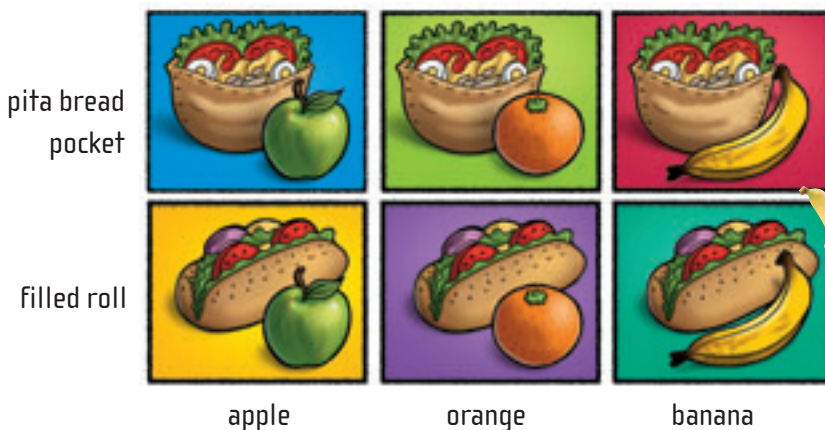
Only \$5 for 1 carbohydrate item, 1 piece of fruit, and 1 drink!

Carbohydrate	Fruit	Drinks
filled roll	apple	orange juice
pita bread pocket	orange	milk
toasted sandwich	banana	cup of soup
panini	kiwifruit	yoghurt
	plum	

You could have a different lunch every school day for the whole term!



1. Mark and Sanjit want to work out if the tuck shop's claim is true. They look at a diagram of the old menu:



The old menu only had 2 carbohydrate and 3 fruit items: that's 6 combinations. There are about 50 school days in a term – there can't be that many options with the new menu!

- How could you adapt this diagram to include the extra carbohydrate and fruit options and the drinks? Describe what you'd change.
- Is the tuck shop's claim true?



2. Sanjit used a short cut to help him work out the number of different combinations for the old menu.

I multiplied the number of carbohydrate options by the number of fruit options:  $2 \text{ carbohydrates} \times 3 \text{ fruits} = 6 \text{ different combinations}$ .

Use Sanjit's short cut to work out how many options there are with the new menu.

3. The tuck shop decides to add 1 more item so that they will be able to offer even more combinations. To get the highest number of different combos, should the item be a carbohydrate, fruit, or drink?

Sanjit's short cut will help with this problem too.

4. The tuck shop wants to offer a wide range of toasted sandwiches.

Ask about our super-duper vegetarian option.

### Toasted Sandwiches

Basic toastie: 1 item from each category

Bread	Meat and dairy	Vegetables	Sauce

How many items need to be in each category to offer a choice of at least 50 different basic toasted sandwiches?

I'll have wholemeal bread, ham, tomato, and BBQ sauce, please.

5. Discuss with a classmate how the number of options would be affected if you were allowed to choose 2 of your 3 fillings out of the same list.

I'd like ham, cheese, and tomato but no sauce, please.