

## Increasing and decreasing quantities by a percentage

### Introduction

Hand out mini whiteboards and pens. Remind the learners about the work they have been doing with percentages. Ask them some basic questions about increasing a quantity by 50%, 10%, 100%. Ask them to write the answers on their mini whiteboards. Their responses will guide you towards whether you need more whole class discussion and some revision on percentages, or whether they seem to be ready for the small group activity.

### Card matching activity

Put the learners into pairs. Each group should have:

- A sheet of A3 paper with an amount of money represented in each corner
- three sets of arrow cards
- glue or prestik.

Explain that they should begin with the percent arrow set. They should place arrows between each pair of quantities. You may like to model this with some big cards.

Allow them enough time to do the activity.

Try not to tell them the answers, just listen to what they are saying. This will help you decide what questions to ask them in order to help them think about different approaches (such as finding matching tables by reading points off a graph).

As students finish placing the percent cards, hand out the arrow set with the decimal multipliers. These provide students with a different way of interpreting the situation. Do not collect the percentage arrow cards. An important part of this task is for students to make connections between different representations of an increase or decrease.

Finally hand out the fraction cards, when appropriate.

Encourage students to use their calculators to check the arithmetic.

### Discussion

Have the big money cards on the board. Ask students to come to the board to place the arrow cards. Ask them to explain their reasoning.

### Keeping a record

Give each student a record sheet. Explain that the graph is given, and they should write in the rule, equation and table values. This can be done during the discussion. These record sheets can then be stuck in the students' books.