Talking Money with Calculators

Overview

This activity is designed to assist students to use a calculator correctly for money calculations and to give and interpret oral instructions related to money. It emphasises the use of the decimal point to separate cents from dollars on the calculator and provides practice at interpreting the different ways that money amounts are spoken in our society. It also contains pair exercises that encourage students to speak and hear money amounts themselves as they practice using calculators, so is also helpful with students who are learning English.

The activity '*Key Words for Calculations*' in the *Exploring Numbers* section is a useful preparation for this activity.

Recommended complementary activities are: '*Calculating Change*' in the *In the Head Calculations* section, to discourage students from becoming overly dependent on calculators, and '*Estimate or Accurate*' in the *Exploring Numbers* section, to the introduce the skills of estimating numbers and the associated language, which are also important for sensible use of calculators. The activity '*About How Much*?' which follows in this section reinforces all of these skills.

Skills and Knowledge

- Speaking and listening with money
- Speaking and listening with +, −, x, ÷
- Entering dollars and cents on a calculator
- Interpreting calculator results

Preparation and Materials

- Basic calculators (1 per student) [it is possible to use calculators on student phones instead.] Photocopy Activity Sheets 1 & 2 on to paper and cut each into two sets of questions as indicated (1 per pair of students)

Suggested Procedure

Distribute a basic calculator to every student, or, if using phones, ensure that they all know how to locate and operate the calculator.

Asking an introductory question

Explain the task by reading aloud:

- *I want you to use the calculator to add **one dollar thirty-seven** and **thirteen cents.***

Do not write this question on the board as it is important that students work out for themselves the connection between cents and the decimal point.

Some common errors may emerge at this point.

- Some students may say $14.37 because they did not use a decimal point before the 13 cents.
- Others may not recognise the .5 as 50 cents because the calculator drops off the final 0.

If there are differing responses collect them on the board without comment.

Then ask students to discuss in pairs why there are some differences. What may have happened to get these different answers?

If there are not differing responses suggest the following scenario:

- *Last time I asked a group this questions some people got different answers: Some said **$14.37** and some said **1 dollar 5***
- *Can you think how they got those answers?*
- *Talk about it in pairs for a minute before you tell me.*

Practising with the calculator

From the suggestions below, read out several more simple calculations for students to try.

After each question:
- First allow a moment for them to compare with one other student - discuss the answer and how to say it.
- Then select one or two students to read their results aloud to the group.

This will involve students:
- hearing the numbers you read out
- entering them correctly on to the calculator
- choosing the correct function key (+, - , x, ÷)
- interpreting the displayed answer
- reading their answer aloud as money in English
- clearing the calculator display between calculations

If this is really new to any of the students they may want to do it in pairs until they become more confident.

Create as many extra questions as your students need in order to become confident.

Suggested calculations:

Read aloud:
- '*Add ten dollars forty-five and fifty-five cents*'
  [11.   eleven dollars]
- '*Find the total of sixteen cents, three dollars five and a dollar ninety-nine*'
  [5.2   five dollars twenty or five dollars and twenty cents]
- '*Ten dollars **take away** ninety five cents*'
  [9.05   nine dollars and five cents]
- '*Four dollars **minus** three dollars seventy*'
  [0.3   thirty cents]
- '*Four **times** five dollars twenty-five cents*'
  [21.   twenty-one dollars]
- '*A hundred and eight dollars, fifty **by** three*'
  [325.5   three hundred and twenty five dollars, fifty]
- '*Two thousand and forty- six dollars **divided** by five*'
  [409.2   four hundred and nine dollars, twenty]

Rounding money (optional discussion)

Finish the activity with this question.
- '*Two hundred and eight dollars, sixty **divided** by three*'
  [69.53333   sixty-nine dollars and fifty three cents]

The answer may be discussed at several levels depending on your students' experience with decimals and calculators.

As it is money, only two decimal places will have meaning, so in this case the final digits can be ignored, giving you $69.53.

However, if you wish to begin a more in depth discussion of rounding ask students to try dividing the amount $208.60 by 9 instead of 3.

The answer 23.28888889 would strictly be rounded up to 23.29.

You may also want to discuss rounding practices in supermarkets now that five cents is the smallest coin available. For example:

- *What you would the supermarket ask for if $23.29 was the total on the register?*
- *If it was $58.52 what would you expect to pay?*

Allow students to share their experiences in supermarkets and advise them to start observing what happens.

Further to this discussion, you could ask:

- *What happens if you use a card instead of cash?*
- *If the government decides to get rid of the five cent coin what would happen?*

Further practice – a pair activity

This follow up exercise allows students to practice further in pairs, with emphasis on speaking, listening and interpreting the numbers.

Arrange students into pairs and tell them they will be taking it in turns to be the reader and the listener. Then ask them to turn their chairs so that they are back to back and cannot see each other.

Give each person one set of the questions from the Activity Sheet, Set 1 or Set 2. They must not show their set to the other person.

Getting a correct answer will depend on the reading and interpreting skills of both students, so if there is an error they should go through all of the processes together to find the error.

The first person (A) then reads aloud the questions on their paper one at a time to their partner (B). B follows the instruction on the calculator then reads aloud the answer from the calculator display. Person A writes down what they hear. After they have gone through the six questions, A compares the written answers to those on the folded section of the sheet. If they are not the same, both work through the steps together to work out what went wrong.

A and B then change roles and use the second set of numbers.

Follow-up activities

Once students have gained confidence with the numerical language of this activity and feel reasonably confident putting money into the calculator, it is time to challenge them further with reality-based money calculations. The students will then need to decide for themselves which operation to choose.

For example:
- *What is the total cost if I buy …. and …… and ……?*
- *How much change would I get from $50 if I buy a …..?*
- *How much will five of …. cost?*
- *If I share the cost of …… between 3 people how much will each pay?*

Junk mail such as supermarket catalogues and sales brochures or information from on-line shopping sites are all ideal for practice of this type.

'Calculating Change' in the *In the Head Calculations* section, is recommended as a complementary activity to discourage students from becoming overly dependent on calculators.

A back to back speaking and listening activity for pairs

Photocopy and cut each set separately.

Fold on the line indicated so that answers are not seen until after the calculations.

Distribute one set to each person in the pair.

Set 1

1. $12.43 + 57 cents

2. $3.08 + $2.80 + $0.20

3. $30 - $29.75

4. 6 x $2.99

5. $407.50 x 5

6. $2,083 ÷ 3

Set 1 – Answers

1. $13

2. $6.08

3. $0.25 (25 cents)

4. $17.94

5. $2,037.50

6. $694.33

Set B

1. $11.53 + 47 cents

2. $6.09 + $4.70 + $0.30

3. $50 - $49.25

4. 7 x $1.99

5. $309.50 x 7

6. $3,091 ÷ 9

Set 2 – Answers

1. $12

2. $11.09

3. $0.75 (75 cents)

4. $13.93

5. $2,166.50

6. 6. $343.44

A back to back speaking and listening activity for pairs

Photocopy and cut each set separately.

Fold on the line indicated so that answers are not seen until after each calculation.

Distribute one set to each person in the pair.

Set 3

1. $50.43 + 9 cents

2. $4.07 + $3.90 + $0.10

3. $50 - $48.25

4. 5 x $1.99

5. $208.50 x 3

6. $3,046 ÷ 9

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Set 3 – Answers

1. $50.50

2. $8.07

3. $0.75 (75 cents)

4. $9.95

5. $625.50

6. $338.44

Set 4

1. $20.45 + 5 cents

2. $7.05 + $9.30 + $0.70

3. $50 - $49.25

4. 4 x $2.99

5. $407.50 x 5

6. $1,057 ÷ 3

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Set 4 – Answers

1. $20.50

2. $17.05

3. $0.25 (25 cents)

4. $11.96

5. $2,037.50

6. $352.33