PAT Teaching Resources Centre

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PAT Maths: Skill illustration

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Chickens

Home > Resources > PAT Maths > Skill illustrations > Chickens

Linked from: Statistics and Probability: Statistics 65-74

PAT Maths scale score: non-scaled item

Content strand: Statistics and Probability

PAT Maths descriptor: Interpret a simple picture graph.

Curriculum code: ACMSP263

PREREQUISITES

- One-to-one correspondence
- Collecting and organising data

KEY CONCEPTS AND SKILLS

- Interpreting data represented as a picture graph where one picture represents one data value

QUESTION

Sam has three chickens.

This graph shows the number of eggs each chicken laid in one week.

Skill illustration: Chickens

Linked from: Statistics and Probability: Statistics 65-74

PAT Maths scale score: non-scaled item
Content strand: Statistics and Probability
PAT Maths descriptor: Interpret a simple picture graph.
Curriculum code: ACMSP263 (Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays)

PREREQUISITES

- One-to-one correspondence
- Collecting and organising data

KEY CONCEPTS AND SKILLS

- Interpreting data represented as a picture graph where one picture represents one data value

QUESTION

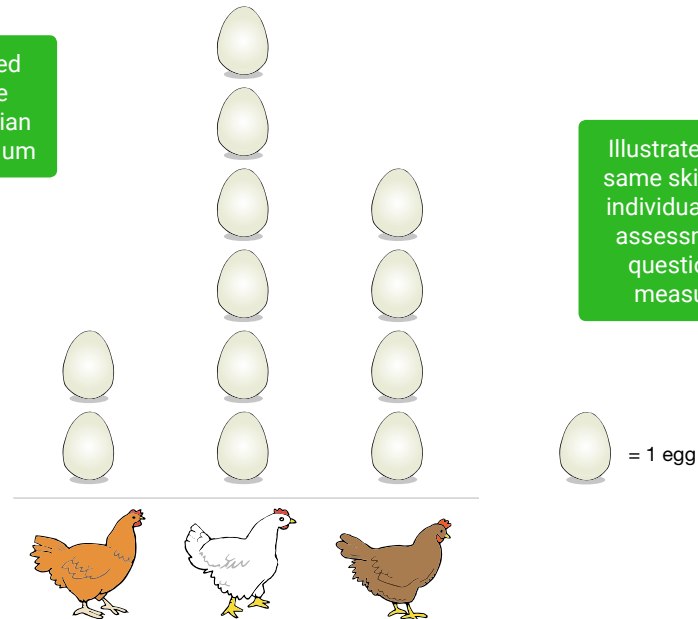Sam has three chickens.
This graph shows the number of eggs each chicken laid in one week.

= 1 egg

Select the chicken that laid four eggs.

COMMON ERRORS AND MISCONCEPTIONS

Key	C:	
Option reasoning	A	(may select the first chicken, not realising that one of the chickens did lay four eggs)
	B	(may select the largest column without counting)
	C	Key

LINKED CONCEPT BUILDERS

Sorting data and picture graphs

MOVING FORWARD

Interpreting simple graphs (Concept builder)

Find out more
www.acer.org/pat-trc

Concept builder: Equivalent fractions

Maths strand and sub-strand

Linked from: Number and Algebra: Fractions and decimals 135-144, 125-134

PAT Scale Score ranges

PREREQUISITES

- Fraction notation (Concept builder)
- Fraction representation – unit fractions (Concept builder)
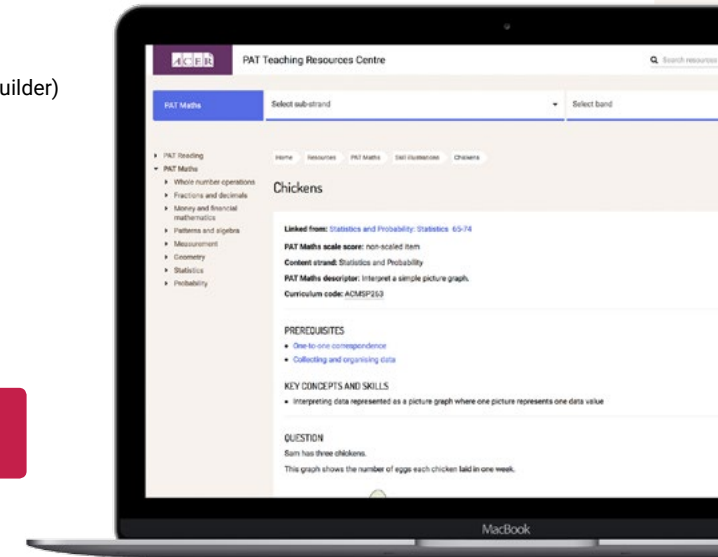- Fraction representation – multiples of unit fractions (Concept builder)

This concept builds on these skills

KEY CONCEPTS AND SKILLS

Understanding that equivalent fractions may look different pictorially or numerically, but have the same value.
For example:

$$\frac{1}{3} = \quad = \quad = \text{ one third}$$

- Using effective strategies for finding equivalent fractions.

These are the main ideas that students will learn

COMMON ERRORS AND MISCONCEPTIONS

- Being unfamiliar with the term equivalence
- Not realising that 'shaded parts' do not need to be next to each other within a whole for the fractions to be equivalent

Common misunderstandings are based on years of PAT norming studies
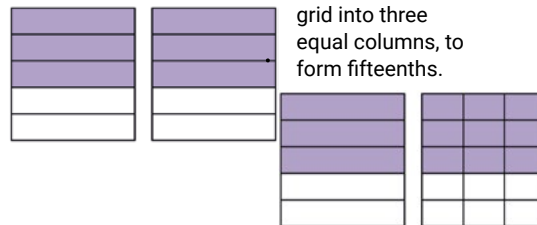
CONCEPT BUILDERS

Modelling with grids
- Provide students with a pair of grids.

For example:

Then have students divide the second grid into three equal columns, to form fifteenths.

Have them shade $\frac{3}{5}$ of each of the grids.

Concept builders can be used with individual students, small groups or a whole class.

- Discuss:
  - What is the whole?
  - What fraction of the first grid is shaded? ($\frac{3}{5}$)
  - What fraction of the second grid is shaded? ($\frac{9}{15}$)
  - Are they the same? Are they equal? What is the same? What is different?
  - Can this $\frac{9}{15}$ be simplified? (This could be shown numerically by simplifying the fraction).
- Repeat the activity with a different pair of grids.
- Alternatively this activity could be completed and/or explored using the equivalent fractions pointer available at the
- Computational Science Education Reference Desk (CSERD) (2015).
- This activity could be varied by having students identify the un-shaded fractions of the grids.
- Extend this activity to fraction walls.

Fraction walls
- Have students use and colour a fraction wall. Have students identify the values of fractions across the rows, and have students identify fractions that are equal down the columns. This could be aided with a ruler.
- Activities can use the fraction wall. For example: have students use two six-sided dice. Have students roll the dice and add the resulting numbers together, for example, 5 + 4 = 9. This gives the denominator. Then have students roll one dice once, for example, 3. This is the numerator, giving the fraction $\frac{3}{9}$. Have students identify this on their number wall. Then have them look for equivalent fractions, for this example, one-third. Have them list the equivalent fractions of he created fraction.
- Alternatively students could create their own fraction walls using strips of coloured paper.

It is easier for students to work on a larger scale such as A3, which is more accommodating of inconsistencies in cutting and pasting.

Using number lines
- Provide students with a pair of number lines. Have students divide one number line into quarters and the other into eighths. For example:
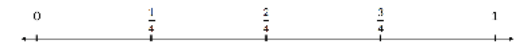
- Have students identify particular fractions on the number line and have them locate the equivalent fraction on the line
- below. Have students record the equivalent fractions, for example, $\frac{3}{4} = \frac{6}{8}$. Repeat with an example from the line below, such as two-eighths, working up.
- Repeat the activity with different number lines or more than a set of two number lines.

FURTHER READING

Deepen your understanding of the concept

- State Government Victoria Department of Education and Training. (2014). Early fraction ideas with models – Part 2: Level 3, Activity 3: Folding paper strips into halves, quarters and eighths. Retrieved from http://www.education.vic.gov.au/school/teachers/teachingresources/discipline/maths/continuum/Pages/fracideas25b.aspx

EXAMPLE QUESTIONS

- PAT Maths Plus, Test 7, Q7 (Annotated question)
- PAT Maths Plus, Test 10, Q9 (Annotated question)
- PAT Maths 4th Ed, Test 6, Q13 (Annotated question)
- PAT Maths Plus, Test 7, Q11 (Annotated question)

Skill illustration: International space station

Linked from: Measurement and Geometry: Measurement 135-144

PAT Maths scale score: 140*
* (adjusted to the PAT Maths 4th Edition scale)

Content strand: Measurement and Geometry

PAT Maths descriptor: Calculate a distance given speed and time.

PREREQUISITES

- Conversion between units of time

KEY CONCEPTS AND SKILLS

- To find a distance given speed and time

QUESTION

International Space Station

Image Credit: NASA

Question 1 of 1

M072001

1 The speed of the international Space Station is 8 kilometres per second.

How many kilometres does it travel in one hour

_____ kilometres

COMMON ERRORS AND MISCONCEPTIONS

Key	28 800
Item commentary	This item requires students to understand short sentences where all information is directly relevant to the task; devise a straight-forward strategy to use the information; carry out a short arithmetic calculation (8 x 60 x 60); and present a single numeric result.
	A common error may be dividing by 3600 (60 × 60) to convert to hours.
	A common error may be dividing by only 60 to convert to minutes.
	A common error may be multiplying by only 60 to convert to minutes.

LINKED CONCEPT BUILDERS

- Unitary method
- Problems involving time
- Devising strategies
- Communication

MOVING FORWARD

- Conventions for travel graphs (Concept builder)
- Travel graphs interpretation (Concept builder)
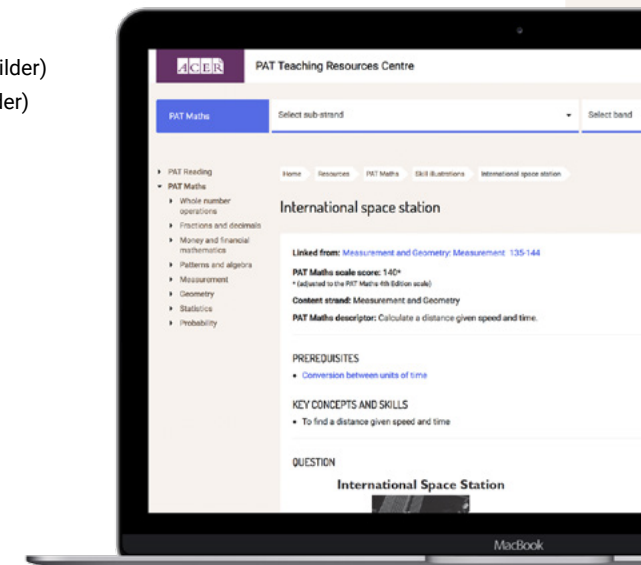
Find out more
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PAT Teaching Resources Centre

Support student progress by connecting assessment with practice

PAT Reading: Skill Illustration

Select Achievement band

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- PAT Reading
  - Retrieving directly stated information
  - Interpreting explicit information
  - Interpreting implied information
  - Reflecting on the text
  - Decoding and concepts of print
- PAT Maths

Home Resources PAT Reading Skill illustrations Identify word meanings

Skill illustration: **Identify word meanings**

Linked from: Retrieving directly stated information 70-79

PAT Reading descriptor: Identifies the meanings of three simple, familiar words without audio support.

Key concepts and skills: Retrieving directly stated information

QUESTION

Drag lines to match each word with its meaning.

fun   unhappy

near   to enjoy

Skill illustration: Identify word meanings

Linked from: Retrieving directly stated information 70-79

PAT Reading descriptor: Identifies the meanings of three simple, familiar words without audio support.

Key concepts and skills: Retrieving directly stated information

QUESTION

Drag lines to match each word with its meaning.

| fun | unhappy |

| near | to enjoy |

| sad | close by |

ANSWER

Drag 'fun' to 'to enjoy', 'near' to 'close by', 'sad' to 'unhappy'

EXPLANATION

Students match familiar words to their synonyms or simple definitions to indicate their understanding of the meaning of these words. The difficulty of this question type depends upon the familiarity of the words (which they may have to decode) and the level of complexity in the definitions. In the example provided here, the definitions are fairly easy to read and understand.
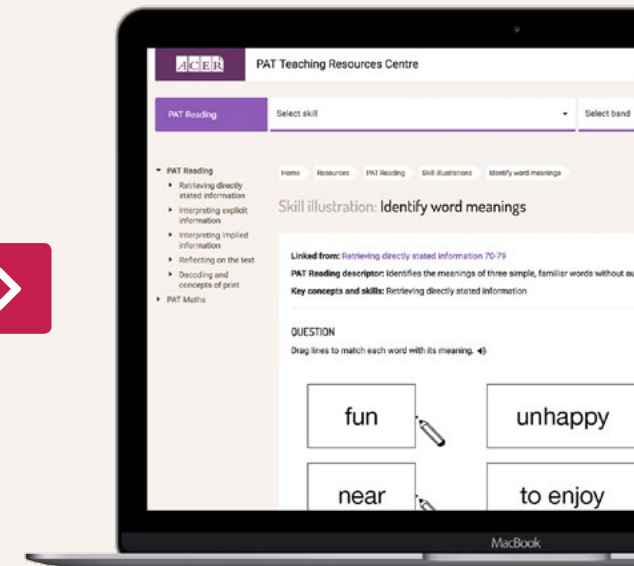
LINKED TEACHING ACTIVITIES

- Matching synonyms

ASSOCIATED TEST ITEMS

PAT Early Years Reading Mid-Year 1 - Question 4
PAT Early Years Reading Mid-Year 1 - Question 7

Find out more
www.acer.org/pat-trc

Teaching activity: Character traits (+ extension)

Linked from: Comprehension: Interpreting implied information 130–139

PAT Scale Score range

ACTIVITIES

Learning intention	For students to be able to infer an overall character trait when evidence is subtle and sometimes contradictory.
Complete	Tracking characters (+extension).
Explain	that students need to use all the information in a text to summarise a character's main traits. They need to consider all the evidence, including possibly contradictory attitudes or actions, and then prioritise what seem to be the more consistent or overarching behaviours and attitudes in order to describe the main character traits.

Learning intention clearly articulated

Exemplar text can be displayed for whole-class / small-group teaching

Revolt

As I was getting into bed one night my mother came into my room and said seriously, 'Sybylla, I want to have a talk with you.'

'Talk away,' I responded rather sullenly, for I expected a long sing-song about my good-for-nothingness in general, a subject of which I was heartily tired.

'Sybylla, I've been studying the matter over a lot lately. It's no use; we cannot afford to keep you at home. You'll have to get something to do.'

I made no reply, and my mother continued, 'I am afraid we will have to break up the home altogether. It's no use; your father has no idea of making a living. I regret the day I ever saw him. Since he has taken to drink he has no more idea of how to make a living than a cat. I will have to give the little ones to some of the relatives; the bigger ones will have to go out to service, and so will your father and I. That's all I can see ahead of us. Poor little Gertie is too young to go out in the world (she was not twelve months younger than I); she must go to your grandmother, I think.'

I still made no reply, so my mother inquired, 'Well, Sybylla, what do you think of the matter?'

'Do you think it absolutely necessary to break up the home?' I said.

'Well, you suggest something better if you are so clever,' said mother, crossly. 'That is always the way; if I suggest a thing it is immediately put down, yet there is never any one to think of things but me. What would you do? I suppose you think you could make a living on the place for us yourself.'

'Why can't we live at home? Blackshaw and Jansen have no bigger places than we, and families just as large, and yet they make a living. It would be terrible for the little ones to grow up separated; they would be no more to each other than strangers.'

'Yes; it is all very well for you to talk like that, but how is your father to start again with only five cows in the world? It's no use, you never talk sense. You'll find my way is always the best in the end.'

'Would it not be easier,' I replied, 'for our relations to each give a little towards setting us up again, than to be burdened with the whole responsibility of rearing a child? I'm sure they'd much prefer it.'

'Yes, perhaps it would be better, but I think you will have to get your own living. What would they say about having to support such a big girl as you are?'

'I will go and earn my own living, and when you get me weeded out of the family you will have a perfect paradise. Having no evil to copy, the children will grow up saints,' I said bitterly.

My Brilliant Career by Miles Franklin

Read	the text with the students and conduct a brief discussion about characters and plot.
Discuss	any unfamiliar vocabulary or concepts.
Ask	students to summarise what the evidence indicates about Sybylla's character and attitude.
Encourage	students to suggest words or phrases that sum up as accurately as possible the character traits that Sybylla displays in the text.
Record	the character traits alongside each piece of evidence.
Explain	that making subtle distinctions between words with similar meaning to precisely describe a character shows deep understanding of the text. Students need to develop a broad vocabulary and should be encouraged to do this whenever possible.
Discuss	consistencies and contradictions in the evidence about Sybylla. For example, at first she is sullen, and then cooperative and offering ideas to solve the problem, but then she reverts back to being unhelpful and sarcastic.
Ask	students to prioritise what seem to be the most consistent attitudes or behaviours of Sybylla.
Explain	that it is easy to misread characters by imagining yourself in their situation and identifying how you would think and behave, or how you might expect others to think and behave, without taking notice of how the character actually thinks and behaves.
Ask	students to imagine themselves in a similar situation to Sybylla and identify how they would behave or how they think Sybylla should behave.
Discuss	students' responses.
Generate	some plausible but incorrect inferences about Sybylla with the students. For example: • Sybylla and her mother often fight (evidence paragraph 2) • Sybylla never helps with the housework (evidence paragraph 2) • The farm used to have lots of different types of animals (evidence paragraph 9) • Sybylla and her mother have rich relatives (evidence paragraph 10).
Rank	the incorrect inferences as: plausible but clearly contradicted by evidence; plausible and possibly contradicted by evidence in the text; plausible and possible—no evidence to clearly contradict; implausible.
Discuss	techniques students can use to check that the inferences they make are supported by the text and not just presumptions.

EXTENSION

Supports differentiation in the classroom

Ask	students to write their own narrative which shows changing attitudes and behaviours of the main character/s. Suggested characters and topics could include a doctor and a patient in hospital, or a chef and customers in a café.
Remind	students to include some complexities in their narrative, such as: ambiguity; uncertainty; unusual attitudes; or an unexpected change in the character.
Share	students' responses and provide feedback.

Find out more
www.acer.org/pat-trc

Teaching activity: Close reading for specific words

Reading skill supports targeted teaching

Linked from: Comprehension: Retrieving directly stated information 70-79

PAT Scale Score range

ACTIVITIES

Learning intention clearly articulated

Learning intention	For students to learn to read closely and accurately to locate words.
Explain	to the students that they need to read very carefully to make sure they understand texts. Sometimes, they might have to read things a few times to make sure they understand.
Explain	that the class is going to play a game.

Exemplar text can be displayed for whole-class / small-group teaching

Tell	students they have to find all the animals in this word jumble.
Discuss	their findings as a class. Ask them how they made sure they had found all the animals. Did they read slowly? Did they go back and reread?