

Classroom Activity Sheets

More General Knowledge, English & Maths

The pages that follow contain printable exercises for students in the middle to later years of schooling.

More General Knowledge English Maths

Downloading

The contents of this publication may only be downloaded by the original purchaser for use within their own educational institution. The publisher prohibits the loaning or on-selling of this publication for the purposes of reproduction.

Under the Australian Copyright Act 1968 a remuneration notice must be given to Copyright Agency Limited (CAL).

For details of the CAL licence for educational institutions, contact CAL, 19/157 Liverpool St, Sydney NSW 2000, tel: (02) 9394 7600, fax: (02) 9394 7601, email: info@copyright.com.au.

Published by Australian Teacher
a division of **Madison Rey Pty Ltd**

Email: info@australianteacher.org

Australian Teacher is committed to raising standards
in Literacy and Numeracy in Australian schools.

Teachers' Notes

These worksheets have been designed to:

- enhance students' **General Knowledge** in many areas of Science, the Humanities and the Arts.
- provide practise in **English** Grammar, Punctuation, Dictionary Use and Written Expression.
- provide practise in **Maths** concepts that cover a broad spectrum of the curriculum.

Questions may be answered on the photo-copiable *GEM Challenge Answers* sheet at the end or, alternatively, in students' workbooks.

Teachers will be pleased that answers to most exercises are included; responses to questions asking for students' opinions are marked *Teacher check*.

When to use these GEMs

These GEM worksheets make wonderful home assignments and are equally useful in research-based library lessons. A valuable feature at the end of every sheet is the *Brain Buster* activity for fast finishers.

Skills Your Students Will Get Practice In

*Skimming information for key words and phrases *Summarising *Seeking Main Points *Writing Main Idea
*Using Key Words for internet Searches *Focussing on, and keeping to the point *'Weeding out' irrelevant information

Skimming and Key Words

With the arrival of the internet in the early 1990s it became increasingly important for students in late primary and early secondary school to develop the skill of *skimming* a passage or article to search for key words and phrases.

These General Knowledge exercises offer plenty of scope for this essential skill to be put into practice.

How to go about Finding Answers

1. Read through the questions.
2. Scan/read the suggested websites for answers; they (answers) are often -but not always- at or near the beginning of the article.

Occasionally a search engine, such as Google, may have to be used. Then the student can type in a key word(s) or phrase to help them find what they are seeking.

How Much Should Students Write?

Unless specified otherwise each **General Knowledge** activity (NB not a *question* within an activity) should be answered with a minimum of three sentences and a maximum of $\frac{3}{4}$ page. Full sentence answers -not single words or phrases- are expected (this also applies to the **English** and **Maths** activities ...*unless obvious or otherwise specified*).

**** Important Words about Suggested Websites ****

Nearly all of the General Knowledge exercises have suggested websites and two factors were considered when choosing these sites. The first was stability/longevity; our belief is that all or most of these websites will be available to students for years to come. The second important consideration was suitability of text, that is to say, is the text appropriate for students in the late primary/ early secondary age group?

In most cases students will have no difficulty finding the information they seek but it is acknowledged that a few of the suggested websites may prove a little challenging (this is where students will get most practise in using the skill of skimming for sub-headings or keywords).

There may well be times when a website's language level is too high for some students; they may encounter words and phrases which are unfamiliar to them; at such times a little help, guidance and prompting from a supervising teacher or parent should resolve the problem.

Students are encouraged to visit other sites if they (1) have difficulty in finding an answer and (2) are particularly interested in the topic and wish to explore it further.

Disclaimer

All of us involved in Education are aware that some internet sites contain spelling and/or grammatical errors.

www.enchantedlearning.com is such a site but as it's aimed at educating children and has excellent illustrations we decided to 'go with it'.

The public websites of **Wikipedia** are (very occasionally) vandalised (have content changed inappropriately) by those desirous of being a nuisance. However the publisher is unaware of any unsuitable language or graphics being used in such cases.

On balance it was decided to recommend Wikipedia sites as the great majority are uncontaminated, are extremely up-to-date and are compiled by experts in the field.

Notwithstanding all the above Australian Teacher will not be held responsible for any difficulties of any nature pertaining to the suggested websites in this book.

Contents									
1	G	About Australia	Light and Colour	World Cities	E	Punctuation	M	Factors	p 5
2	G	Which Country?	The Brain	Planet Saturn	E	Vocabulary	M	Number	p 6
3	G	Magnetism	Which Country?	Musical Theory	E	Vocabulary	M	Division	p 7
4	G	The Vikings	Picasso	Florence Nightingale	E	Direct Speech	M	The Fibonacci Numbers	p 8
5	G	Landmark Events	Women Scientists	Which Country?	E	Roald Dahl	M	Pascal's Triangle	p 9
6	G	Ancient Greece	Islam	The Microscope	E	Sentence Enrichment	M	Number	p 10
7	G	Dinosaurs & Birds	The Ear	History	E	Charles Dickens	M	Decimals & Percentages	p 11
8	G	Volcanoes	Octopus	Pacific Ocean	E	Vocabulary	M	Factors	p 12
9	G	Mona Lisa	Cactus	Praying Mantis	E	Creative Writing	M	Pi	p 13
10	G	Latitude	Wings & Flight	Easter Island Statues	E	Enid Blyton	M	Solid Shapes	p 14
11	G	Great Wall of China	Michelangelo	Iguana	E	Peter Pan	M	Number Pattern	p 15
12	G	The Eye	Squirrels	Vasco da Gama	E	Alice in Wonderland	M	Square & Odd Numbers	p 16
13	G	Somalia	Whales	The Matterhorn	E	Adjectives	M	Volume	p 17
14	G	Dawn Fraser	Levers	Nureyev & Fonteyn	E	Acrostic Poems	M	Patterns	p 18
15	G	Antarctica	Nicolas Copernicus	Rainbows	E	Dorothea Mackellar	M	Circles	p 19
16	G	Geysers	Marco Polo	King Cobra	E	Verbs	M	Triangular Numbers	p 20
17	G	Leaning Tower of Pisa	Photosynthesis	Tutankhamen	E	Vocabulary	M	Number	p 21
18	G	Bird of Paradise	Tornadoes	Ancient Egypt	E	Silent Letters	M	Triangles	p 22
19	G	Clouds	Extinct Animals	Charlie Chaplin	E	Plurals	M	Division	p 23
20	G	Bats	Beethoven	Ferdinand Magellan	E	Proverbs	M	Problem Solving	p 24
21	G	Solar Power	Sir Edmund Hillary	Stradivarius Violins	E	Homophones	M	Multiples	p 25
22	G	Wright's Bi-plane	Buddhism	Robert Hooke	E	Tense	M	Measurement	p 26
23	G	Respiratory System	The Aztecs	Earth's Atmosphere	E	Collective Nouns	M	Area	p 27
24	G	Amphibians	Australian Prime Ministers	Rodin	E	Punctuation	M	Shapes	p 28
25	G	Carl Linnaeus	Socrates	Shirley Temple	E	Punctuation	M	Factors	p 29
26	G	Genetics	Rubber	Nautilus	E	Fairy Tales	M	Problem Solving	p 30
27	G	Asteroids	Court Jester	Trilobites	E	Adverbs	M	Time	p 31
28	G	Latitude and Longitude	Louis Pasteur	Ancient Rome	E	JK Rowling & Roald Dahl	M	Circles	p 32
29	G	Telescopes	Galleons	The Lute	E	Adjectives	M	Volume and Capacity	p 33
30	G	Humming-birds	Japan	Antibiotics	E	Synonyms & Antonyms	M	Patterns	p 34
Solutions									p 35

GEM Challenge No. 1

English *Punctuation*

Rewrite with correct punctuation:

richard asked why isnt
uncle bob coming to
new zealand with us
his mother replied uncle
bobs friend alice will be
visiting him from
england then
oh i see said richard

Society & Environment *About Australia*



On a map of Australia
label states, territories,
capital cities, major
rivers, seas and oceans.
As your source of
information use an atlas
and/or or the WWW.



Suggested Website:

[http://www.ga.gov.au/
image_cache/GA4073.jpg](http://www.ga.gov.au/image_cache/GA4073.jpg)



Mathematics *Factors*

1, 2, 3, 4, 5 and 8 are all factors of:
i) 20 ii) 30 iii) 40 iv) 120

Society & Environment *World Cities*



Unjumble these world cities:

i) donnol ii) rogisampe iii) scwoom

Science and Technology *Light & Colour*

White light is made up of the colours
of the rainbow. Using the WWW as
your source explain how this may be
shown using a glass prism.
Include a neatly labelled diagram.

Suggested Website:

<http://www.amonline.net.au/colour/what.htm>

Brain Buster!

Write as many words as you can beginning with the letter a.
(no plurals, names or abbreviations).
Score 1 point for each letter used in correctly-spelt words.

GEM Challenge No. 2

Society & Environment **Which Country?**

1. Which country has this red and white flag?
2. Name two countries that share a border with it.
3. Name a large sea that is very close to this country.



Mathematics **Number**

Which of these is closest to 700?

- i) $(25)^2$
- ii) DCXL
- iii) $10^2 \times 3^2$
- iv) $\frac{3}{4} \times 840$
- v) 9^3
- vi) 1000-259
- vii) 70% of 900
- viii) $367+258$
- ix) $5^2 \times 30$
- x) 0.9 of 900

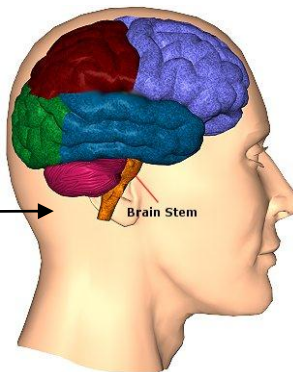
Science and Technology **The Brain**

Write four sentences about the brain stem (say where it is and what it does).

-Use your own words-

Suggested Websites:

<http://www.neuroskills.com/tbi/bbstem.shtml>
<http://health.howstuffworks.com/brain3.htm>



Science & Technology **Planet Saturn**

Write a few sentences explaining how planet Saturn's atmosphere is different from Earth's.

Suggested Website:

<http://science.howstuffworks.com/46000-saturn-explained.htm>



English **Vocabulary**

Write a sentence containing these three words:
melancholy vagrant amble

Brain Buster!

See how many square numbers - from 1 onwards - you can list. Write them like this:

$$1^2=1; 2^2=4; 3^2=9; 4^2=16, \text{ etc}$$

GEM Challenge No. 3

Science & Technology

Magnetism

You probably know that a magnet has a north pole and a south pole.
Say what happens if a bar magnet is broken into two pieces.

Suggested Website:

<http://my.execpc.com/~rhoadley/magreview.htm>

Society & Environment

Which Country?

This neighbour of Australia is made up of thousands of islands.

Suggested Websites:

<http://worldatlas.com/webimage/countrys/asia/idlarge.htm>

<http://indonesia.elga.net.id/>

1.

a) What is this nation?

b) What is its population?



2.

a) What is a garuda?

b) What is a komodo dragon?

3. What are the names of this country's

a) main islands? b) capital city? c) main tourist island?

English

Vocabulary

Write down 8 better words than *nice*, 6 better words than *said* and 2 better words than *got*.

10

Mathematics

Division

40

Begin with 40.
Divide by 10. Divide that answer by $\frac{1}{2}$.
Then divide that by $\frac{1}{4}$. What number do you end up with?

$\frac{1}{2}$

$\frac{1}{4}$

Music and the Arts

Musical Theory

Explain the difference between *beat* and *rhythm*.



Brain Buster!

Write the names of as many countries as you can whose names begin with either A, P or S.

GEM Challenge No. 4

Society & Environment

The Vikings



1. Using your own words write six interesting sentences about the Vikings.
2. The Vikings believed in gods and goddesses. Write a sentence about each of four of these gods/goddesses.

Suggested Websites:

<http://www.bbc.co.uk/schools/vikings/invasion/index.shtml>

<http://www.bbc.co.uk/schools/vikings/beliefs/beliefs2.shtml>

Maths

The Fibonacci Numbers

1. What are the Fibonacci Numbers?
2. Write down the first fifteen Fibonacci numbers.
3. Explain Fibonacci's rabbits.

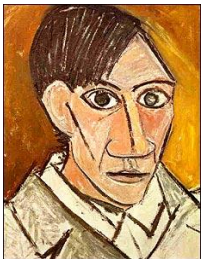
Suggested Websites:

* <http://www.mcs.surrey.ac.uk/Personal/R.Knott/Fibonacci/>

* <http://www.mcs.surrey.ac.uk/Personal/R.Knott/Fibonacci/fibnat.html#Rabbits>

Music and the Arts

Picasso



Some rate Pablo Picasso as the greatest artist of the twentieth century. Write a paragraph about Picasso's early life.

Suggested Website:

<http://www.sparknotes.com/biography/picasso/section1.html>

English

Direct Speech

Re-write with speech marks:

Did you watch the movie last night? asked Dan.
No, replied Anna, I was at the gym.
Dan said, I think you would have liked it a lot.

Society & Environment: Famous People

Florence Nightingale ...the 'Lady with the Lamp'

Who was Florence Nightingale? Why do we remember her so fondly? What qualities would you say she possessed?



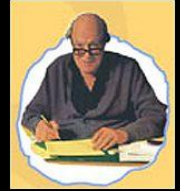
Brain Buster!

How many words beginning with N can you make from the letters in *Florence Nightingale*? *no names

GEM Challenge No. 5

English Literature

Roald Dahl



1. Write twenty interesting things about very this famous author.
2. How are Roald's books different from those of another famous author you know?

Suggested Website: http://www.readathon.org/roald_dahl.html

Society & Environment

Which Country?

I am a mountainous country in Asia.

I am a Kingdom, with 27 million inhabitants, most of whom are of the Hindu religion.

My capital city begins with K and is at latitude 27° 42' N.

Which country am I?

Society & Environment

Landmark Events

Write 3-4 sentences about each of the major world events that occurred in the years below.

1066

1492

1788

1969

Mathematics

Pascal's Triangle

Look up *Pascal's Triangle* on the internet.

Say how it 'works'.

Now sketch the first 9 rows (from the top) of the triangle.

Science and Technology

Women Scientists



All of the scientists below achieved fame in the same branch of Science. Which branch of Science is that?

Write an interesting paragraph about the one who discovered something beginning with C.



Henrietta Leavitt

Annie Cannon

Mary Blagg

Maria Mitchell

Brain Buster!

If **A**=1, **B**=2, **C**=3.....**Z**=26 what does the following message say?
1-12-23-1-25-19 20-18-25 25-15-21-18 8-1-18-4-5-19-20

GEM Challenge No. 6



Society & Environment **Ancient Greece**

Write 6-8 sentences explaining why the Ancient Greeks liked to have strong, athletic bodies and why the Olympic Games were important to Greece's young men.

Suggested Website:

<http://www.historyforkids.org/learn/greeks/games/index.htm>



Society & Environment Faith & Religion

Islam

This is a mosque, a place where Muslims (people whose religion is Islam) worship.

1. Who started Islam?
2. What do Muslims believe?
3. In which parts of the world do most Muslims live?



Suggested Website:

<http://www.worldalmanacforkids.com/explore/religion1.html>

Maths

Number

Which two do not equal 121?

- i) $2 \times 10^2 \div 2 \div 1^2 + 5^2 - 2^2$
- ii) $8^2 + 6^2 + 4^2 + 2^2 + 1^2$
- iii) $3^3 \times 2^2 + 4^2 - 2^2 +$
- iv) $10^2 \times 1^2 + 7 \times 3$
- v) $3^4 + 2^5 + 2^3$
- vi) $5^2 \times 2^2 + 7 \times 2^2$
- vii) $5^2 \times 2^2 + 5^2 - 2^2$
- viii) $10^2 + 6^2 - 4^2$



Science & Technology

The Microscope

Use your own words to say why the following years are important in the development of the microscope. **1590 1667 1675**

Suggested Website: http://nobelprize.org/educational_games/physics/microscopes/timeline/index.html



English **Sentence Enrichment**

For each group of words make one excellent sentence.

1. **monolith barren brave horizon**
2. **cautious athlete breeze triumphant**
3. **dancer concert performance satisfied**



Brain Buster!

How many different *individual* sports can you think of?
How many different *team* sports can you think of?

GEM Challenge No. 7

Science & Technology

Dinosaurs & Birds



Dimorphodon



Scientists believe that birds evolved from dinosaurs.

- Why do they think this?
- What do you think birds might evolve into?!

Suggested Website:

<http://www.enchantedlearning.com/subjects/dinosaurs/>

English

Literature



Charles Dickens

Dickens is one of the most famous authors who ever lived.

In 1858 he began reading his books to the public. For what three reasons did he do this?

Suggested Website:

http://www.leninimports.com/charles_dickens.html#partone

Science & Technology

The Ear



The Ear

1. What are cilia?
2. What causes dizziness?
3. What causes earache?

Suggested Website:

<http://www.coolquiz.com/trivia/explain/docs/hearing.asp>

Maths

Decimals & Percentages

How much is
0.3 of 80% of
\$500 ?

Society & Environment

History

Write 4-6 interesting sentences about a devastating fire that occurred in 1666.

Brain Buster!

Write the planets' names in their order from the Sun.
Now write them in alphabetical order.

GEM Challenge No. 8

Science & Technology **Volcanoes**

The websites below contain information about volcano formation and other facts about volcanoes. Find, and list, eight interesting things mentioned on these websites.

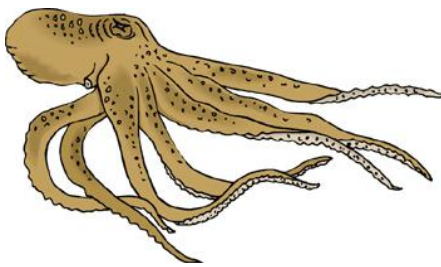
Volcano Websites:

<http://www.fema.gov/kids/volcano.htm>

<http://www.fema.gov/kids/volfacts.htm>



Science & Technology **Octopus**



The octopus is a highly intelligent animal, capable of problem-solving and finding its way through a maze. It also has both short and long-term memory.

Can you find out more about octopus intelligence?

Suggested Website:

<http://en.wikipedia.org/wiki/Octopus>

Maths

Factors

$$10 = 1 \times 10; \quad 10 = 2 \times 5$$

The factors of 10 are
1, 2, 5 and 10.

$$12 = 1 \times 12; \quad 12 = 2 \times 6; \quad 12 = 3 \times 4$$

The factors of 12 are
1, 2, 3, 4, 6 and 12.

Write out all the factors of 100.

English

Vocabulary

Find the meaning of pallid and use it in a clever, original sentence.

Society & Environment

Pacific Ocean

The Pacific Ocean is the largest body of water on earth. Can you find, and list, ten interesting facts about it?

Suggested Website:

http://en.wikipedia.org/wiki/Pacific_Ocean

Brain Buster!

If someone's heart beats (on average) 70 times per minute how many times does it beat in a year? (365 days)

GEM Challenge No. 9



Science & Technology *Praying Mantis*

The praying mantis derives its name from the Greek word *Mantes* which means prophet or fortune teller.

What is the diet of this large insect?

Suggested Website:
http://en.wikipedia.org/wiki/Praying_mantis

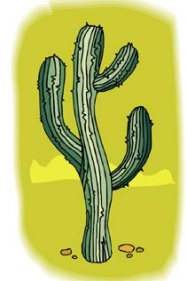


Science & Technology

Cactus

Cacti are common in North and South America but rare in Africa. Why is this?

Suggested Website:
<http://en.wikipedia.org/wiki/Cactus>



English *Creative Writing*

Compare these two sentences:

- He opened the small box.
- *Trembling with hope and excitement he opened the small, dusty wooden box.*

Complete these to make your own excellent sentences:

1. Slowly and carefully.....
2. All of a sudden.....
3. There before me was....
4. "Stop!" shouted....

Music & the Arts

Mona Lisa

In 1911 this famous painting was stolen from the Louvre Museum in Paris. Who stole the painting, and why?



Suggested Website:
http://en.wikipedia.org/wiki/Mona_Lisa

Maths *Pi*

The Greek letter π (pi) represents the value obtained when a circle's circumference is divided by its diameter. This value is approximately 3.1416. The Chinese mathematician Zu Chongzhi (pictured) computed this value over 1600 years ago.



- 1) Write the value of pi to 20 decimal places.
- 2) Write 4 sentences about Zu Chongzhi's life.

Suggested Websites:
<http://en.wikipedia.org/wiki/Pi>
http://en.wikipedia.org/wiki/Zu_Chongzhi

Brain Buster!

How many eggs in an eighth of a quarter of two dozen dozen?

GEM Challenge No. 10

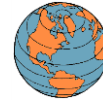
English Literature

Enid Blyton

This famous British author wrote more than 500 books for children. What can you find out about her childhood?

Suggested Website:

<http://www.kirjasto.sci.fi/eblyton.htm>



Society & Environment

Latitude

The Equator is one of the 5 major circles of latitude.
List these 5 circles along with their latitudes.

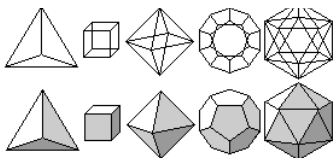
Suggested Website:

http://en.wikipedia.org/wiki/Circles_of_latitude

Maths

Solid Shapes

Name these 5 solids.....



Suggested Website:

www.quadibloc.com/math/acsint.htm

Society & Environment

Easter Island Statues

1. What did the original inhabitants of Easter Island call themselves?
2. About how long ago did they settle on the island?
3. What are the statues called?



Suggested Website:

http://www.mysteriousplaces.com/Easter_Island/

Science & Technology **Wings and Flight**

Insects, bats and birds all fly by flapping their wings.

Write 3-4 sentences about each of these animal groups showing how their mechanisms of flight differ from one another. (Sketches are welcome.)

Suggested Website: <http://www.nurseminerva.co.uk/adapt/flap1.htm>



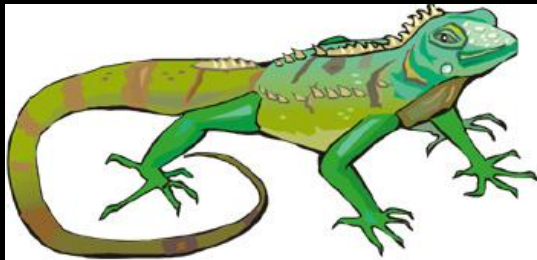
Brain Buster!

Can you think of six (or even more) words, each with 4 syllables?

GEM Challenge No. 11

Science & Technology *Iguana*

Write a paragraph telling how the green iguana is so well adapted to its environment.

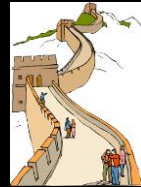


Make special mention of fingers, claws, tail, skin & jaws.

Suggested Website:

<http://www.thewildones.org/Animals/iguana.html>

Society & Environment *Great Wall of China*



- When, why, and by whom was the Wall built?
- What is it made of?

Suggested Website:

<http://www.enchantedlearning.com/subjects/greatwall/>

Maths *Number Pattern*

You know that $1 \times 1 = 1$ and $11 \times 11 = 121$

Use a calculator to find the answers to these:

$$111 \times 111 = \quad 1111 \times 1111 =$$

$$11111 \times 11111 =$$

What do you notice?

Here are some more to try:

$$111111 \times 111111 =$$

$$1111111 \times 1111111 =$$

$$11111111 \times 11111111 =$$

$$111111111 \times 111111111 =$$

English Literature *Peter Pan*



1. Who created Peter Pan?
2. List several characters from the Peter Pan stories.
3. Why would it be good to be Peter?
4. Describe Captain Hook.

http://en.wikipedia.org/wiki/Peter_Pan

Music and the Arts *Michelangelo*

Who was Michelangelo? When and where did he live?
Write two or three sentences about his painting of the Sistine Chapel.

Suggested Website:

<http://www.lucidcafe.com/library/96mar/michelangelo.html>



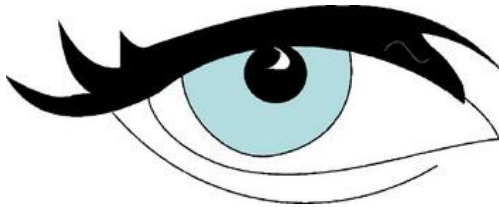
Brain Buster!

In two columns –Individual and Team– write the names of all the **Olympic Games** sports you can think of.

GEM Challenge No. 12

Science & Technology

The Eye



Here are some parts of the eye:

**lens vitreous humor retina
cornea aqueous humor**

1. In what order do these eye parts process incoming light?
2. What are the two kinds of cells in the retina?
3. Which cell type is used for night viewing?
4. Sketch and label the two cell types.

Suggested Website:

<http://health.howstuffworks.com/eye2.htm>

Science & Technology

Squirrels

1. What do many squirrels do when they feel they are in peril?
2. Why is early spring a difficult time for squirrels?
3. What is an interesting fact about albino squirrels?



4. Are squirrels herbivores or omnivores? What does their diet consist of?
5. Do all squirrels eat nuts?

Suggested Website:

<http://en.wikipedia.org/wiki/Squirrel>

Maths

Square & Odd Numbers

$$1^2 = 1 = 1$$

$$2^2 = 4 = 1 + 3$$

$$3^2 = 9 = 1 + 3 + 5$$

$$4^2 = 16 = 1 + 3 + 5 + 7$$

Write the next three lines.

Alice in Wonderland



- What was author Lewis Carroll's real name?
- Write 3 or 4 sentences about Alice Liddell.

English Literature

Suggested Website:

http://en.wikipedia.org/wiki/Alice's_Adventures_in_Wonderland

Society & Environment

Vasco da Gama

1. Who was Vasco da Gama?
2. Which country did da Gama reach on May 20, 1498?
3. Some of da Gama's crew died of scurvy. What causes scurvy?

Suggested Website:

<http://www.enchantedlearning.com/explorers/page/d/dagama.shtml>



Brain Buster!

Write down as many Australian cities and towns as you can think of.

GEM Challenge No. 13



Society & Environment

Somalia

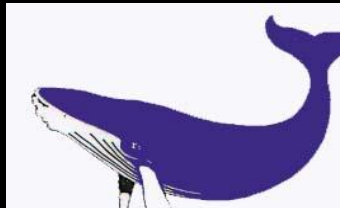
The people who live in Somalia are called Somalis.

- Where is Somalia and what is its capital city?
- What currency do Somalis use?
- Many Somalis are nomadic. What does *nomadic* mean?

Science and Technology

Whales

- Whales and manatees have something in common; what is it?
- How many dinosaurs were larger than the blue whale?
- Breaching is something that many whales do. Why do they do this?



- Describe spyhopping, lobtailing and logging.
- Write 3 or 4 sentences about whale songs.
- Describe the extinct whale, Basilosaurus.
- Are baleen whales in danger of going extinct?

Suggested Website:

<http://www.enchantedlearning.com/subjects/whales>

Maths

Volume

The formula for finding the volume of a sphere is:

$$V = 4 \pi r^3 \div 3$$

Planet Earth has a radius of 6 400 km. Use a calculator to find Earth's volume.

Society & Environment: **Natural Wonders**

The Matterhorn



- Where is this mountain?
- How high is it?
- Describe the Matterhorn's faces.
- When, and by whom, was the Matterhorn first climbed?

Suggested Website:

<http://en.wikipedia.org/wiki/Matterhorn>

Adjectives

*shimmering startled
dishevelled meticulous
intriguing sleek dapper
gullible bottomless*

English

Adjectives

Match the adjectives with the nouns.

Nouns

*gentleman fool rabbit
chasm rocket-ship tramp
diamond mystery
watchmaker*

Brain Buster!

Make 3 lists: Blue Things (eg eyes, sky), Green Things (eg sea, grass), Yellow Things (eg sun, banana). Which list is longest?

GEM Challenge No. 14

Society & Environment Famous People

Dawn Fraser

Dawn Fraser has been called the greatest swimmer of all time.

- When she was a young girl Dawn found that swimming was good for her health. What illness did she suffer from then?
- Where did Dawn grow up?
- What Olympic medals did she win? (*what type of medals?*)



- What were some events she excelled in?
- In which cities did she compete?
- When did she break a world record?

Suggested Website:

<http://teachit.acreekps.vic.edu.au/cyberfair2001/DawnFraser.htm>

photograph by Allsport

English

Acrostic Poems

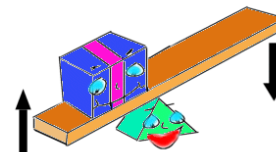
- What is an acrostic poem?
- Write your own acrostic poem with the topic BEACH.

Website:

www.home.earthlink.net/~iesmith/Acrostic1.html

Science & Technology

Levers



- What is a lever?
- Sketch the different types of lever and give an example of each.

Suggested Website:

<http://www.enchantedlearning.com/physics/machines/Levers.shtml>

Maths Patterns

- Continue the pattern, finishing with 90%.
0.1, $\frac{2}{10}$, 30%, 0.4, $\frac{5}{10}$, 60% ...
- Continue the pattern, finishing with 0.
 $2\frac{1}{4}$, $1\frac{7}{8}$, $1\frac{1}{2}$, $1\frac{1}{8}$, ...

Nureyev



Fonteyn

Music & the Arts

Rudolph Nureyev and Margot Fonteyn were a famous dancing couple.

- For what kind of dancing are they known?
- How were their childhoods different?
- How did they come to meet?

www.artsedge.kennedy-center.org/exploring/ballet/nw/nureyev/fonteyn.html

Brain Buster!

How many animals (incl' birds & fish) can you think of with 5 letters in their name?

GEM Challenge No. 15

Maths

Circles

Using your compass construct two circles, radii 2cm and 4cm. Work out each circle's area and write it inside the circle.

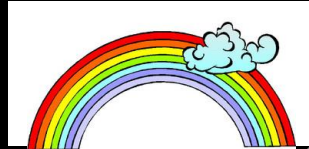
Remember: $A = \pi r^2$

Science & Technology Rainbows

Write a paragraph explaining how rainbows are formed.

Suggested Website:

<http://www.deltatech.com/rv/rainbows.html>



English Literature Dorothea Mackellar

Which verse of 'My Country' do you like best, & why?

www.abpa.org.au/Bush_Poetry/Traditional_Poetry/my_country.html

Science & Technology

Nicolas Copernicus



Nicolaus Copernicus
(1473-1543)

- When, and in which country, was Copernicus born?
- Did Copernicus believe in the heliocentric theory of the Solar System?
- Aryabhata of India is not as famous as Copernicus. Do you think he deserves to be? Why/why not?

Suggested Website:

http://en.wikipedia.org/wiki/Nicolaus_Copernicus

Society & Environment

Antarctica

- Who was responsible for the first confirmed sighting of Antarctica, in 1820?
- Give three reasons why this continent was long neglected after this sighting.



- What were four decisions of the 1959 Antarctic Treaty?
- Going way back in history, what did Ptolemy think was the reason for Antarctica's existence?
- How much of the world's fresh water is in Antarctica, and in what form is it?
- How thick is the Antarctic ice sheet?

Suggested Website:

<http://en.wikipedia.org/wiki/Antarctica>

Brain Buster!

Which scientist or explorer do you most admire? Give reasons for your answer.

GEM Challenge No. 16

Science & Technology

Geysers

1. What is a geyser?
2. Write two sentences about the geysers that occur on Neptune's moon, Triton.
3. Write a few sentences explaining how geysers are created.



Suggested Website:

<http://en.wikipedia.org/wiki/Geyser>

Society & Environment

Marco Polo

- To where did Marco make his great journey and with whom did he travel?
- Which famous road formed part of his route?
- In your opinion was Marco's journey as impressive as those of famous maritime explorers such as Captain Cook and Christopher Columbus? Explain.

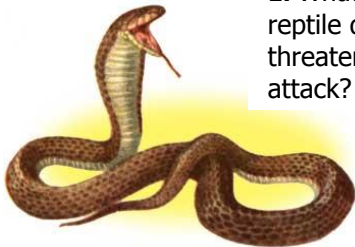


Suggested Website:

http://en.wikipedia.org/wiki/Marco_Polo

Science & Technology

King Cobra



1. What does this reptile do when it is threatened or on the attack?
2. At what point in its life does it stop growing?

<http://www.enchantedlearning.com/subjects/reptiles/snakes/Kingcobra.shtml>

Suggested Website

Maths

Triangular Numbers



As can be seen here the numbers 1, 3, 6, 10, 15, 21, 28, 36 and 45 can each be represented by dots in the form of a triangle.

Find the pattern and draw the next triangular number, as above.

English Verbs

I **watched** a fighter plane **going fast** over the ocean and then it **went behind** some clouds.

I **gazed in awe** at a fighter plane **zooming** over the ocean before it **quickly disappeared** behind some clouds.

Comparing the two sentences above you can see how well-chosen verbs, *especially when enriched with adverbs*, can give your sentences greater impact.

Put these verbs into one excellent sentence→

sniffed nibbled scampered

Brain Buster!

Make a list of every insect you know. Then do the same with birds. Which list is longest?

GEM Challenge No. 17

English

Vocabulary

Choose the correct meaning:

- i) hesitant *cautious heavy relaxed*
- ii) cygnet *baby swan signal cigar*
- iii) vibrant *vibrating energetic black*
- iv) solemn *joyful curious serious*

Maths

Number

Write out these numbers. Circle all the prime numbers in red and the square numbers in blue.

2, 3, 4, 5, 8, 9, 11, 12,
15, 16, 17, 21, 23, 25,
27, 29, 33, 36, 37, 39

And now..... circle the two
cube numbers in green.

Society & Environment

Leaning Tower of Pisa

- In which year was the Tower built?
- What is its angle of slant?
- What is the weight of its heaviest bell?
- Is it true that the Tower is made of marble?

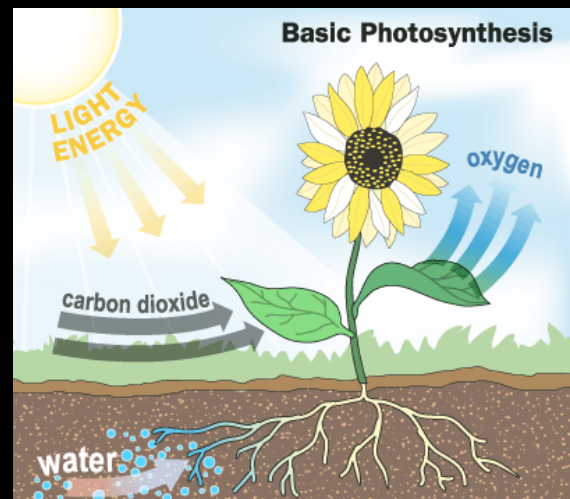


Website:

http://en.wikipedia.org/wiki/Leaning_Tower_of_Pisa

Science & Technology

Photosynthesis



- What is photosynthesis?
- Write a few sentences describing the process and how it works.

Suggested Website:

<http://science.howstuffworks.com/earth1.htm>

Society & Environment

Tutankhamen



- Who was Tutankhamen?
- When, and by whom, was his tomb discovered?
- In which valley was his tomb found?
- What was found in his tomb?

Suggested Website:

<http://homepage.powerup.com.au/~ancient/tut1.htm>

Brain Buster!

How many mammals can you name that are either striped or spotted? (no domesticated mammals)

GEM Challenge No. 18

Science & Technology

Bird of Paradise

- How many species of this bird are there?
- Which large island has most BOP?
- Do all BOP have bills the same shape?
- In where, beginning with f, do these birds live?
- How does the Great BOP hang when courting?



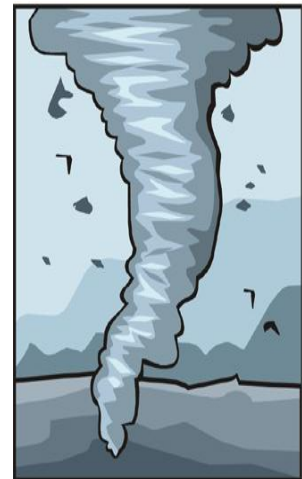
Suggested Website:

http://aviary.owls.com/bird_paradise/birdofparadise.html

Society and Environment

Tornadoes

- A tornado is a rotating column of ____?
- What is the cloud type associated with tornadoes?
- Tornadoes can be categorised as weak, strong and ____?
- In which year was there a massive tornado in Wichita Falls, Texas. USA?



Suggested Website:

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/svr/torn/home.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/svr/torn/home.rxml)

English

Silent Letters

Someone has removed the silent letters from these words. Can you write them out correctly? *The italicised words give the main words' meanings.*

pam tree receit docket ryme poem
 wisle shrill sound gost spirit autum season
 com hair accessory nuckle finger joint
 weat grain thum finger nome goblin
 thisle plant tom grave night medieval soldier

Society & Environment

Ancient Egypt

- What, beginning with t, were the pyramids?
- About how many Ancient Egyptian pyramids are there?



- At which place in Egypt were the three largest pyramids built?
- For whom was the 'Great Pyramid' built?

Suggested Website:

<http://www.ancientegypt.co.uk/pyramids/home.html>

Maths

Triangles

Sketch or construct three triangles... one scalene, one isosceles and one equilateral. Neatly label them.

Brain Buster!

Can you make more small words (3-7 letters) from *ENCYCLOPEDIA* or *DICTIONARY*?

GEM Challenge No. 19

Science & Technology

Clouds



- What is nephology?
- How are clouds formed?
- Name and describe four cloud types.

Suggested Website:

<http://en.wikipedia.org/wiki/Cloud>

Science & Technology

Extinct Animals



This is Eusmilus.
Using your own words
write 4-6 sentences
about it.

Suggested Website:

<http://en.wikipedia.org/wiki/Eusmilus>

Society & Environment

Famous People

Charlie Chaplin

- Who was Charlie Chaplin?
- Name and describe Charlie's main character.



NB:
chaplain
(not
chaplin)



http://www.popstarsplus.com/actors_charliechaplain.htm



Maths *Division*

1) Write out the following and insert answers:

$$\begin{aligned} 4 \div 8 = \\ 4 \div 4 = \\ 4 \div 2 = \\ 4 \div 1 = \\ 4 \div \frac{1}{2} = \\ 4 \div \frac{1}{4} = \\ 4 \div \frac{1}{8} = \\ 4 \div \frac{1}{16} = \\ 4 \div \frac{1}{32} = \end{aligned}$$

2) Complete this sentence:

The smaller the quantity we divide by, the _____ the answer we get.

3) Try this...

$4 \div$ one thousandth =

4) And now this...

$4 \div$ one billionth =

English *Plurals*

Re-write the following, replacing the underlined words with their plurals:

A horse hurt its hoof when it stepped on a jagged rock beside an old gum tree.

Brain Buster!

Would you rather be a famous sculptor or a famous artist (painter)? Explain why.

GEM Challenge No. 20

Science and Technology

Bats



- What do bats send out from their mouth or nose?
- How can bats identify objects?
- What can bats tell about an insect from its echo?
- What do most bats use echolocation for? (two things)

Suggested Website:

<http://members.aol.com/bats4kids/echo.htm>

Music & the Arts

Beethoven

- In which country was Beethoven born?
- Who else in Beethoven's family were musicians?
- Who was Beethoven's first teacher?
- How old was Beethoven when he had his first music published?
- Which city did Beethoven move to and make his home?
- Which one of Beethoven's five senses deteriorated?



Suggested Website:

<http://home.swipnet.se/zabonk/cultur/ludwig/beetbio.htm>

Society & Environment

Ferdinand Magellan



- In which year, and in which country, was Magellan born?
- For whom was Magellan a messenger when he was 12 years old?
- What did Magellan do for the first time when he was 25?

- Why was the King of Spain interested in supporting Magellan on his great voyage?
- What did Magellan name after himself?
- How many of Magellan's 5 ships made it safely home?

Suggested Website:

<http://library.thinkquest.org/J002678F/magellan.htm>

English

Proverbs

Write the meanings of these proverbs:

- Too many cooks spoil the broth.
- Don't cross your bridges before you come to them.
- Once caught, twice shy.
- Don't judge a book by its cover.
- A bird in the hand is worth two in the bush.
- Look before you leap.
- Beware of a wolf in sheep's clothing.

Maths

Problem Solving

Farmer Brown spent \$23 buying 8kg of chicken feed.
Farmer Smith went to another supplier and bought 6kg of the same chicken feed for \$17.
Which farmer got the better deal?

Brain Buster!

What do you think is the best invention ever? Explain your answer.

GEM Challenge No. 21

Science & Technology

Solar Power

- What is the name of the procedure in which plants create chemical energy from the sun's rays?
- Solar energy is used with seawater to remove the salt content. What is this process called?
- Give two advantages of using solar power.

Suggested Website:

http://en.wikipedia.org/wiki/Solar_power



Society & Environment

Sir Edmund Hillary

- In which country did Sir Edmund Hillary first become interested in mountain climbing?
- Which mountains did Sir Edmund climb just after he scaled the peaks of New Zealand?
- With whom did Sir Edmund reach the summit of Mt Everest?
- Which continent did Sir Edmund explore in the years 1955-58?



Suggested Website:

<http://www.achievement.org/autodoc/page/hil0bio-1>

Music & the Arts

Stradivarius Violins

- In which country was Antonio Stradivari born?
- Between which years did Stradivari make his best violins?
- Which wood did Stradivari use to make his violins' internal parts?
- How many 'Strads' are thought to exist?



Suggested Website:

<http://en.wikipedia.org/wiki/Stradivarius>

English

Homophones

Place each word in a sentence to show that you know the differences in meaning in the homophone pairs.

break	brake	knight	night
wear	where	weather	wether
hole	whole	stake	steak

Maths

Multiples

Which of these are multiples of 8?

4, 8, 42, 56, 64,
90, 96, 100, 102,
104, 110, 120

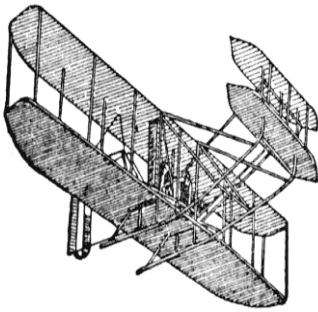
Brain Buster!

Think of a sport that requires many different skills.
What is the sport? What are the skills?

GEM Challenge No. 22

Society & Environment Great Inventions

Wrights' Bi-plane



- What was the name of the first powered aircraft designed and built by the Wright Brothers?
- In which year was this aircraft built?
- How many propellers did the plane have?
- How was the pilot positioned during flight?
- How did the pilot steer?

Suggested Website:

http://en.wikipedia.org/wiki/Wright_Flyer

Society & Environment Faith & Religion

Buddhism



- What three things are listed by the Dhammapada as the teaching of the Buddhas?
- When, and in which country, was the Buddha born?
- Why did Siddhartha Gautama leave home at age 29?
- What did Siddhartha Gautama do beneath a bodhi tree?
- For how many years did the Buddha wander through north-eastern India, teaching?

Suggested Website:

<http://webpace.ship.edu/cgboer/buddhaintro.html>

English **Tense**

Re-write in past tense:

I'm going to the beach. I'll do some swimming first and then I'll catch a few waves.

Re-write in future tense:

I went on holidays to Bali. On my first day there I did some shopping and bought a few souvenirs. After that I spent every day by the side of the pool.

Science & Technology

Famous Scientists

Robert Hooke



- What kind of toys did Robert Hooke make as a youngster?
- What kind of pendulum did Hooke apply to watches when he was 23 years old?
- Hooke did some very important drawings of Mars. When was this?
- What was Hooke's last invention?

Suggested Website:

<http://www.roberthooke.org.uk/chronolo.htm>

Maths

Measurement

How many mm in
2km 450m 78cm?

Brain Buster!

If you had a choice between having as much money as you wanted or having one wish granted which would you choose and why?

GEM Challenge No. 23

Maths

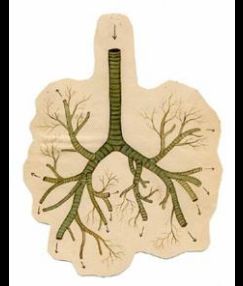
Area

Which has the greater area, a square with sides 7cm or a circle with diameter 8cm?

Science & Technology

Respiratory System

- What delivers oxygen to all parts of the body?
- What gas do we exhale?
- Through which organs does oxygen enter the respiratory system?
- Which organ pulls oxygen into the lungs?



Suggested Website:

<http://www.fi.edu/biosci/systems/respiration.html>

Society & Environment

The Aztecs

- In which modern-day country did the Aztecs live?
- When, and by whom, were the Aztecs first seen?
- What was Tenochtitlan?
- Name two fields of science in which the Aztecs made advances.
- Who was Moctezuma II?



Suggested Website:

<http://library.advanced.org/16325/y-main.html>

English

Collective Nouns

Match each animal group on the left with its collective noun on the right.

- | | |
|------------|----------|
| • fish | • herd |
| • bees | • pride |
| • birds | • pod |
| • buffalo | • colony |
| • lions | • flock |
| • dolphins | • school |
| • ants | • swarm |

Science & Technology

Earth's Atmosphere

- Earth's atmosphere is a thin layer of _____?
- What percentage of our atmosphere is made up of oxygen?
- Which harmful radiation from the Sun is partly blocked by the atmosphere?
- How many km thick is the atmosphere?
- In which layer of the atmosphere does our weather occur?

Suggested Website:

<http://www.enchantedlearning.com/subjects/astronomy/planets/earth/Atmosphere.shtml>

Brain Buster!

Describe a kangaroo (including how it moves) to a person who's never seen one.

GEM Challenge No. 24

Science & Technology **Amphibians**

- Through which organs do amphibians breathe underwater?
- What does the body temperature of an amphibian depend upon?
- To which group (order) of amphibians do newts and salamanders belong?
- Which amphibians are in the same group (order) as frogs?



Suggested Website:

<http://www.enchantedlearning.com/coloring/amphibians.shtml>

Society & Environment

Australian Prime Ministers

- Who was Australia's first Prime Minister?
- Who are the only two Prime Ministers to serve three terms?
- For how many years was Robert Menzies PM?
- Who did John Howard succeed as Prime Minister?

Suggested Website:

http://www.nma.gov.au/education/school_resources/websites_and_interactives/primeministers/

English **Punctuation**

Re-write with corrections made:

the capital city of england is london said
alice
yes i know replied ben its the biggest
city in the whole of britain
then alice added did you know uncle
toms going to england with sarahs father

The Arts

Rodin

Rodin was a famous French sculptor.

- One of Rodin's early works was 'Man with _____'?
- In 1878 Rodin sculpted someone preaching. Who?
- From what material did Rodin sculpt 'The Secret' (1910)?



Suggested Website:

http://www.bc.edu/bc_org/avp/cas/fnart/rodin/rodin.html

Maths

Shapes

One cylinder, one cone
& one triangular pyramid.

- **Total edges?**
- **Total vertices?**
- **Total faces?**

Brain Buster!

If you could be any animal what would it be? Say why.

GEM Challenge No. 25

Science & Technology

Carl Linnaeus



Carl Linnaeus, also known as Carl von Linné, is regarded as the 'Father of Modern Taxonomy'.

- What is taxonomy?
- In the 1740s Linnaeus made several field trips in Sweden. What was the purpose of these trips?
- How many species of animals and plants did Linnaeus classify in his first edition of 'Systema Naturae'?
- Because of Linnaeus all animals and plants now have a Latin name. How many words does each name consist of?

Suggested Website

http://en.wikipedia.org/wiki/Carolus_Linnaeus

Maths

Factors

Which number do you think has more factors, 48 or 64?

Write them out to check.

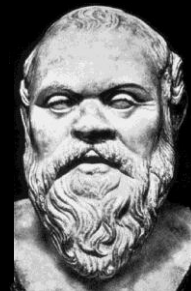
Society & Environment:

Socrates

1. Who was Socrates?
2. Between what years did he live?
3. Which student of Socrates gave us much information about him?
4. Socrates wished to educate the citizens of which city?

Suggested Website

<http://en.wikipedia.org/wiki/Socrates>



Music and the Arts

Shirley Temple



- Why is Shirley Temple famous?
- How did Shirley's career start?
- At what kind of dancing did Shirley excel?

Suggested Website

http://en.wikipedia.org/wiki/Shirley_Temple

English

Punctuation

Re-write with correct punctuation marks.

mrs browns cat fluffy hurt one of its paws
mrs brown took fluffy to the vet who said i
think we should keep fluffy here overnight
oh alright replied mrs brown shall i pick her
up at 10 oclock in the morning

Are you sure you didn't miss any? Check over.

Brain Buster!

If you had the power, what are three things you would do to improve things here on planet Earth?

GEM Challenge No. 26

Science & Technology

Genetics



- Gregor Mendel studied the traits of pea plants. What are *traits*?
- Mendel experimented with hybrid plants. What are hybrids?
- To prove the laws of inheritance for how many years did Mendel cross pea plants?
- Offspring receive traits from both parents. Certain traits are dominant over others. What does this word *dominant* mean?

Suggested Website

http://www.accessexcellence.org/RC/AB/BC/Gregor_Mendel.html

Society & Environment

Rubber

1. There are two sources of rubber. One of these is plants. What is the other?

2. From what, in the rubber tree, is latex obtained?



3. How many common objects can you name that are made of rubber?

Suggested Website

<http://en.wikipedia.org/wiki/Rubber>

Science & Technology

Nautilus



- In what important ways is the nautilus different from other cephalopods?
- In the waters of which two countries have extremely large specimens been found?

Suggested Website

http://en.wikipedia.org/wiki/Chambered_nautilus

English

Fairy Tales

- What was your favourite fairy tale when you were younger?
- What was it about this tale that appealed to you?
- Suppose you have been asked to write a fairy tale for 4-6 year olds. Say something about the setting, the plot and the characters.

Maths

Problem Solving

Which number, when trebled, gives a result that is half the sum of the first five prime numbers added to the first three square numbers?

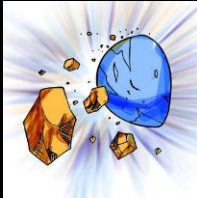
Brain Buster!

What might be a future invention? Describe it and say how it would benefit individuals or society.

GEM Challenge No. 27

Science & Technology

Asteroids



Asteroids orbit the sun and are like small planets.

- Between which two planets are most of the asteroids?

- About how many new asteroids are discovered each month?
- What is the name of the Japanese probe that will bring samples of an asteroid's surface to earth?

Suggested Website

<http://en.wikipedia.org/wiki/Asteroid>

Society & Environment

Court Jester



- What were court jesters?
- Two ways in which jesters entertained the Court in medieval times was with their music and their juggling. What were two other forms of amusement they brought?
- Why was the famous jester Archibald Armstrong sacked by the king?
- How was the jester Jeffrey Hudson presented to the audience?

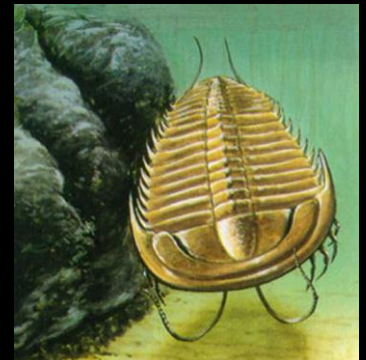
Suggested Website

http://en.wikipedia.org/wiki/Court_jester

Science & Technology

Trilobites

1. What are trilobites and what are the only other fossils better-known than them?
2. What feature did some trilobites share with modern beetles?
3. What kind of fish may have been partly responsible for trilobites going extinct?
4. On which continents have trilobites been found?
5. What have fossil finds in British Columbia revealed about trilobites?



Suggested Website

<http://en.wikipedia.org/wiki/Trilobite>

English

Adverbs

An adverb adds to a verb.

He ran across the playground.

He ran swiftly across the playground.

Make five excellent sentences by adding adverbs to 'colour' these verbs.
(we have helped you with the first one).

1. stepping (cautiously)
2. laughing
3. climbing
4. swimming
5. writing

Maths

Time

Dan the Marathon Man completed the 42.2 km running race in the excellent time of 2 hours 48 mins 17 seconds.

Joe the Abominably Slow Man completed the distance in 6 hrs 12 mins 59 seconds.

How much faster than Joe was Dan?

Brain Buster!

If **A=1**, **B=2** **Z=26**, what does this say.....?

9-20 9-19 3-15-15-12 20-15 2-5 3-12-5-22-5-18

GEM Challenge No. 28

English Literature

JK Rowling & Roald Dahl

If you could be any character from a JK Rowling story who would it be? Why?

Now do the same for a Roald Dahl story.

Maths Circles

Cindy: All circles have an area equal to πr^2 .

Sally: Well I know how to make a circle whose area is equal to π .

Cindy: Really? How can you do that?

Imagine you're Sally. Write your response to Cindy. Include a labelled diagram of your circle.

Society and Environment

Latitude & Longitude

- Which are parallel to each other....lines of latitude or lines of longitude?
- Are the world's time zones linked to latitude or longitude?
- The meridian 0° longitude is known as the...?
- With both latitude and longitude there are ____ minutes in a degree and ____ seconds in a minute.



- From what, beginning with s, does a GPS (global positioning system) receive its signals?

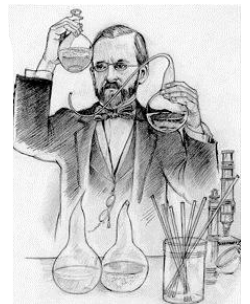
Suggested Website

<http://www.cockpitgps.com/class/index.htm>

Science & Technology

Louis Pasteur

1. What is Louis Pasteur best known for?
2. Pasteur proved that Spontaneous Generation doesn't happen. What is Spontaneous Generation?
3. Pasteur did a lot of important work with vaccines. What are vaccines?
4. Explain how Pasteur helped 9-year old Joseph Meister.
5. Are all germs (bacteria) harmful?



Suggested Website

http://en.wikipedia.org/wiki/Louis_Pasteur

Society & Environment

Ancient Rome

- What three new ideas did the Romans bring to architecture?
- What was Hadrian's Pantheon?
- In the Roman Empire there were many different ways of living. Why was this?
- In what kinds of work did the Romans use slaves?

Suggested Websites:

- www.historyforkids.org/learn/romans/architecture/romarch.htm
- www.historyforkids.org/learn/romans/people/index.htm



Brain Buster!

How many very famous people can you think of whose first or last name begins with the letter S? No pop singers or bands.

GEM Challenge No. 29

Science & Technology

Telescopes



- When was the first telescope made?
- Who was the first to use a telescope for astronomical purposes?
- Which famous telescope orbits the earth?
- Would our lives be any different if we'd never had any telescopes? Give reasons for your answer.

Suggested Website

http://en.wikipedia.org/wiki/Optical_telescope

Maths

Volume & Capacity

Which of these metal containers can hold the most liquid?

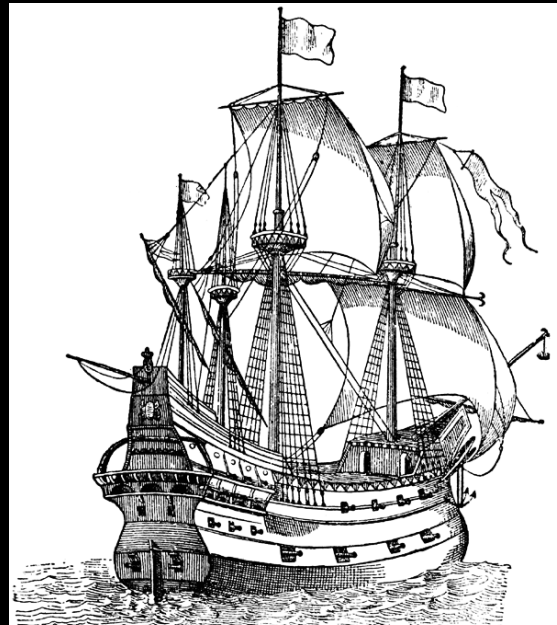
1. A cube, with sides 1m long.
2. A cylinder, radius 50cm, height 1.5m.
3. a sphere, radius 75cm.

Volume Formulae:

$$\text{Cube} = L^3 \quad \text{Cylinder} = \pi r^2 h \quad \text{Sphere} = \frac{4}{3} \pi r^3$$

Society & Environment

Galleons



1. What were galleons?
2. What valuable cargo beginning with the letter t did Spanish galleons often carry?
3. Name two woods used in the construction of galleons.
4. In the 18th century a certain kind of ship replaced the galleon for trade. What kind of ship was that?

Suggested Website

<http://en.wikipedia.org/wiki/Galleon>

Music & the Arts

The Lute



1. To which family of musical instruments does the lute belong?
2. One who plays a lute is called a....?
3. Are lutes made mainly of metal?
4. What is the soundboard of a lute shaped like?

Suggested Website

<http://en.wikipedia.org/wiki/Lute>

English

Adjectives

Make adjectives from these nouns:

- | | |
|----------------|--------------|
| 1. mystery | 2. tragedy |
| 3. competition | 4. circle |
| 5. mountain | 6. adventure |
| 7. telescope | 8. gold |
| 9. triangle | 10. shadow |

Brain Buster!

Here on Earth you can jump up to a certain height.
Write two or three excellent sentences explaining why you could jump higher if you were on the Moon but not as high if you were on Jupiter.

GEM Challenge No. 30

Science & Technology

Hummingbirds



- How fast do hummingbirds flap their wings?
- Hummingbirds are important to flowers. How?
- How many eggs do Hummingbirds lay in their nest?

Suggested Website

<http://en.wikipedia.org/wiki/Hummingbird>

Society & Environment

Japan



1. Where is Japan located?
2. Why is Japan sometimes referred to as the 'Land of the Rising Sun'?
3. How many islands make up Japan?
4. What is the population of the Greater Tokyo Area?

Suggested Website

<http://en.wikipedia.org/wiki/Japan>

Science & Technology Antibiotics

- What is an antibiotic?
- Against which two of these infection types are antibiotics ineffective? **viral fungal bacterial**
- Why were antibiotics labelled 'magic bullets'?
- Some antibiotics actually kill the bacteria while others prevent the bacteria from ?
- In many ancient cultures, such as ancient Egypt, ancient Greece and ancient China, why were certain moulds effective in the treatment of infections?



Suggested Website

<http://en.wikipedia.org/wiki/Antibiotic>

English

Synonyms & Antonyms

1. Write synonyms of these words:

- a) docile b) decrepit c) barren
d) shimmering e) taut f) adept

2. Write antonyms of these words:

- a) assemble b) tycoon c) worthless
d) drab e) impulsive f) timid

Maths

Patterns

Find the rule and write the next four numbers.

100, 92, 83, 73, 62, 50, _____,

_____, _____, _____, _____

Brain Buster!

Do you think there may be life elsewhere in the universe?
Write a paragraph outlining your thoughts on this.

Solutions

GEM Challenge No. 1

<u>About Australia</u>	<u>Light and Colour</u>	<u>World Cities</u>	<u>Punctuation</u>	<u>Factors</u>
Teacher check	Teacher check	London Singapore Moscow	Richard asked, "Why isn't Uncle Bob coming to New Zealand with us?" His mother replied, "Uncle Bob's friend Alice will be visiting him from England then. "Oh, I see," said Richard.	120

GEM Challenge No. 2

<u>Which Country?</u>	<u>The Brain</u>	<u>Planet Saturn</u>	<u>Vocabulary</u>	<u>Number</u>
Turkey Syria, Iraq, Iran, Armenia, Georgia, Bulgaria, Greece Mediterranean Sea or Black Sea	The brain stem is located between the brain and the spinal cord. It has vital roles in basic attention and consciousness, arousal, movement, breathing, circulation and reflexes.	Saturn's atmosphere is much stormier than Earth's, with violent winds. Our atmosphere consists mainly of nitrogen and oxygen; Saturn's has hydrogen and helium.	Teacher check	$(25)^2$

GEM Challenge No. 3

<u>Magnetism</u>	<u>Which Country?</u>	<u>Musical Theory</u>	<u>Vocabulary</u>	<u>Division</u>
each piece will again have a North pole and a South pole	1. a) Indonesia b) 210 million (varies with source) 2. a) large mythical bird-like creature b) largest lizard in the world 3. a) Sumatra, Kalimantan, Sulawesi, Irian Jaya, Java b) Jakarta c) Bali	beat the basic pulse or time of the music rhythm the arrangement or pattern of notes in the music	Teacher check	32

continued over...

*Solutions continued***GEM Challenge No. 4**

<u>The Vikings</u> 1. Teacher check. 2. Examples are: ODIN , the god of magic, poetry and war. THOR , who ruled the skies, storms and thunder. LOKI , who was the mischievous, dangerous trickster god. FREYJA , who was the goddess of love, beauty and fertility. FREY , who was the god of fertility.	<u>Picasso</u> <i>Teacher check</i>	<u>Florence Nightingale</u> Florence Nightingale is famous for her nursing work in the Crimean War where she cared for sick and wounded soldiers (even tending to them on the battle field). <u>Qualities:</u> kind, compassionate, brave, gentle, sympathetic, skilled	<u>Direct Speech</u> "Did you watch the movie last night?" asked Dan. "No," replied Anna, "I was at the gym." Dan said, "I think you would have liked it a lot."	<u>The Fibonacci Numbers</u> 1) The Fibonacci Numbers are a series of whole numbers beginning 0, 1, 1.... Add any two consecutive numbers to get the next one. 2) 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377 3) The Fibonacci numbers are used to calculate the number of pairs of rabbits at the start of each month, beginning with one pair (under ideal conditions)
---	---	--	--	--

GEM Challenge No. 5

<u>Landmark Events</u> 1066 Battle of Hastings 1492 Columbus discovers America 1788 First Fleet sails into Sydney cove 1969 First person to walk on the Moon	<u>Women Scientists</u> All these women were astronomers. Maria Mitchell discovered 'Miss Mitchell's Comet' in 1847.	<u>Which Country?</u> Nepal	<u>Roald Dahl</u> <i>Teacher check</i>	<u>Pascal's Triangle</u> Each number in the Triangle is the sum of the nearest two numbers above it. 
---	---	---	--	---

GEM Challenge No. 6

<u>Ancient Greece</u> The Ancient Greeks believed that their gods loved to see fit, strong, graceful bodies. The Olympic Games were important to Greece's young men because the Greeks liked to turn everything into a competition	<u>Islam</u> 1. Muhammad, the Prophet, in AD 610. 2. Muslims believe that Muhammad is the prophet and lawgiver of his community, that they should pray 5 times a day, fast during the month of Ramadan, give to the poor, and that they should make a pilgrimage to Mecca. 3. Most in Asia & Africa.	<u>The Microscope</u> 1590 Hans and Zacharias Janssen make the first microscope. 1667 Robert Hooke studies various objects (eg cork) with his microscope and publishes his results. 1675 Anton van Leeuwenhoek uses a simple microscope to look at blood, insects & many other objects. He was the first to describe cells & bacteria.	<u>Sentence Enrichment</u> <i>Teacher check</i>	<u>Number</u> neither vi) $5^2 \times 2^2 + 7 \times 2^2$ nor viii) $10^2 + 6^2 - 4^2$ equals 121
---	---	---	---	---

continued over...

Solutions continued

GEM Challenge No. 7

<u>Dinosaurs & Birds</u> <ul style="list-style-type: none"> There are many similarities between birds and theropod dinosaurs, including leg and foot structure, upright stance, laying eggs, bone structure, and scales (modified in birds and some dinosaurs to be feathers). <i>Teacher check</i> 	<u>The Ear</u> <ol style="list-style-type: none"> Cilia are the thousands of hair-like nerve endings inside the cochlea. If you spin around, the fluid in you ears spins as well. That makes the cilia move in all different directions, confusing your brain and making you dizzy. Too much fluid putting pressure on your eardrums causes earaches. They are often a result of infection, allergies, or a virus. 	<u>History</u> <p>The Great Fire of London.</p> <p><i>Teacher check</i></p>	<u>Charles Dickens</u> <p>Reading his books to the public allowed Dickens to increase his income, receive creative satisfaction, and stay in touch with his audience.</p>	<u>Decimals & Percentages</u> <p>\$120</p>
---	---	---	---	--

GEM Challenge No. 8

<u>Volcanoes</u> <p><i>Teacher check</i></p>	<u>Octopus</u> <p><i>Teacher check</i></p>	<u>Pacific Ocean</u> <p><i>Teacher check</i></p>	<u>Vocabulary</u> <p><i>Teacher check</i></p>	<u>Factors</u> <p>1, 2, 4, 5, 10, 20, 25, 50, 100</p>
--	--	--	---	---

GEM Challenge No. 9

<u>Mona Lisa</u> <p>Vincenzo Peruggia stole the Mona Lisa. Con-man Eduardo de Valfierno master-minded the theft, and had commissioned the French art forger Yves Chaudron to make copies of the painting so he could sell them as the missing original.</p>	<u>Cactus</u> <p>Long ago the Americas were joined to the other continents. It is thought that cacti developed in the Americas only after the continents had moved apart. This may explain why cacti are so rare in Africa.</p>	<u>Praying Mantis</u> <p>The praying mantis feeds primarily on other insects such as flies, butterflies, crickets, moths and spiders. However it is not uncommon for larger mantids (mantises) to eat small reptiles and even small mammals or birds.</p>	<u>Creative Writing</u> <p><i>Teacher check</i></p>	<u>Pi</u> <p>1) 3.14159 26535 89793 23846</p> <p>2) <i>Teacher check</i></p>
---	---	---	---	--

continued over...

*Solutions continued***GEM Challenge No. 10**

<u>Latitude</u>	<u>Wings & Flight</u>	<u>Easter Island Statues</u>	<u>Enid Blyton</u>	<u>Solid Shapes</u>
Arctic Circle (66° 33' 38" N) Tropic of Cancer (23° 26' 22" N) Equator (0° N) Tropic of Capricorn (23° 26' 22" S) Antarctic Circle (66° 33' 38" S)	<i>Teacher check</i>	1. the Rapa Nui 2. 1200 years ago 3. moai	<i>Teacher check</i>	tetrahedron cube octahedron dodecahedron icosahedron

GEM Challenge No. 11

<u>Great Wall of China</u>	<u>Michelangelo</u>	<u>Iguana</u>	<u>Peter Pan</u>	<u>Number Pattern</u>
<ul style="list-style-type: none"> The Great Wall of China was built over 2000 years ago, by Qin Shi Huangdi, the first emperor of China during the Qin (Ch'in) Dynasty. masonry, rocks and packed-earth 	Michelangelo was one of the most important artists of the Italian Renaissance period. He was born in 1475 in the village of Caprese, Italy. Between 1508 and 1512 Michelangelo worked on the ceiling of the Sistine Chapel in the Vatican. He covered the ceiling with paintings done on wet plaster, showing nine scenes from the Old Testament.	Iguanas have long fingers and claws to help them climb and grasp. Their long tail is quite sharp and is snapped in the air as a defence mechanism. The tail can break off if caught by a predator but grows back without permanent damage. Iguanas can store fat under their jaws and in their necks for times when there is not much food available.	1. Scottish novelist and playwright, J. M. Barrie 2. Peter, Wendy, Tinker Bell, Captain Hook, Nana, Tiger Lily, Tootles, & others. 3. <i>Teacher check</i> 4. <i>Teacher check</i>	111 x 111 (there are 3 ones in the numbers being multiplied so go up to 3 (as in 123)) 1111 x 1111 (there are 4 ones in the numbers being multiplied so go up to 4 (as in 1234) <i>etc</i> 12321 1234321 123454321 12345654321 1234567654321 123456787654321 12345678987654321

GEM Challenge No. 12

<u>The Eye</u>	<u>Squirrels</u>	<u>Vasco da Gama</u>	<u>Alice in Wonderland</u>	<u>Square & Odd Numbers</u>
1. cornea – aqueous humor – lens - vitreous humor -retina 2. rods and cones 3. rods 4. <i>teacher check</i>	1. they will often send the warning call to alert other squirrels. 2. they are thought by some to bring good luck. 3. buried nuts are no longer available and new food sources have not become available yet 4. omnivores; they eat nuts, seeds, fruits, fungi, green vegetation, insects, eggs, small birds, smaller mammals, frogs, & carrion 5. no, in tropical areas they often don't eat nuts	1. Vasco da Gama (1460-1524) was a Portuguese explorer who discovered an ocean route from Portugal to the East. 2. India 3. scurvy is caused by a lack of Vitamin C	1. Charles Lutwidge Dodgson 2. <i>Teacher check</i>	$5^2 = 25 = 1 + 3 + 5 + 7 + 9$ $6^2 = 36 = 1 + 3 + 5 + 7 + 9 + 11$ $7^2 = 49 = 1 + 3 + 5 + 7 + 9 + 11 + 13$

continued over...

*Solutions continued***GEM Challenge No. 13**

<p><u>Somalia</u></p> <p>Somalia is on the east coast of Africa, east of Ethiopia. Its capital city is Mogadishu.</p> <p>the unit of currency is the Somali shilling</p> <p><i>nomadic</i> means moving from place to place (as wandering tribes do)</p>	<p><u>Whales</u></p> <ul style="list-style-type: none"> * have adapted to life in the ocean & only live there * none * breaching is for play, or to loosen skin parasites * spyhopping: poking head out of water and turning lobtailing: whale sticks its tail up, swings it, and slaps it on the water logging: whale lies still at the surface, resting, with its tail hanging down. * <i>teacher check</i> * <i>teacher check</i> * yes, they're endangered 	<p><u>The Matterhorn</u></p> <ul style="list-style-type: none"> ▪ on the border between Switzerland and Italy ▪ 4478m ▪ it has four faces, facing the four compass points, with the north and south faces meeting to form a short east-west summit ridge. ▪ 14 July, 1865 by E. Whymper, C. Hudson, Lord Francis Douglas, D. Hadow, M. Croz & the two Peter Taugwalders (father & son) 	<p><u>Adjectives</u></p> <p>dapper gentleman gullible fool startled rabbit bottomless chasm sleek rocket-ship dishevelled tramp shimmering diamond intriguing mystery meticulous watchmaker</p>	<p><u>Volume</u></p> <p>1 098 066 219 444 km³</p>
---	--	---	--	---

GEM Challenge No. 14

<p><u>Dawn Fraser</u></p> <ul style="list-style-type: none"> ▪ asthma ▪ Balmain, NSW ▪ 4 gold, 4 silver ▪ 100m freestyle, 400m freestyle ▪ Melbourne, Cardiff, Rome, Perth, Tokyo ▪ 1956 	<p><u>Levers</u></p> <ul style="list-style-type: none"> ▪ a lever is a simple machine that moves a load around a pivot using a force, making work easier for us. ▪ <i>Teacher check</i> 	<p><u>Nureyev & Fonteyn</u></p> <ul style="list-style-type: none"> ▪ ballet ▪ Nureyev grew up in extreme poverty and his father discouraged him from dancing. ▪ Margot Fonteyn grew up in a middle-class English family and her family gave her a lot of support. ▪ The director of the Royal Ballet suggested that Fonteyn dance with Nureyev. 	<p><u>Acrostic Poems</u></p> <ul style="list-style-type: none"> ▪ an acrostic poem uses the letters in a topic word to begin each line; all lines of the poem should relate to or describe the topic word. ▪ <i>Teacher check</i> 	<p><u>Patterns</u></p> <p>0.1, $\frac{2}{10}$, 30%, 0.4, $\frac{5}{10}$, 60%, 0.7, $\frac{8}{10}$, 90%</p> <p>$\frac{2^1}{4}$, $\frac{1^7}{8}$, $\frac{1^1}{2}$, $\frac{1^1}{8}$, $\frac{3^1}{4}$, $\frac{3^1}{8}$, 0</p>
---	--	--	--	---

GEM Challenge No. 15

<p><u>Antarctica</u></p> <ul style="list-style-type: none"> ▪ Fabian Gottlieb von Bellingshausen and Mikhail Lazarev ▪ hostile environment, lack of resources, isolated location ▪ prohibits military activities and mineral mining, supports scientific research, and protects the ecozone ▪ to preserve symmetry of landmass in the world ▪ 70%; ice ▪ 2.5km 	<p><u>Nicolas Copernicus</u></p> <ul style="list-style-type: none"> ▪ 1473, in Prussia (now Poland) ▪ yes ▪ <i>Teacher check</i> (ancient Indian texts state that Aryabhata anticipated Copernicus' work by over 1,000 years) 	<p><u>Rainbows</u></p> <p>When a shaft of sunlight enters a drop of water, a part of it does not pass directly through but is reflected from the inner surface and emerges from the side from which it entered. Also, it is <i>refracted</i> both on entering and leaving the water drop. This process, repeated in the same manner for an immense number of drops, produces the rainbow.</p>	<p><u>Dorothea Mackellar</u></p> <p><i>Teacher check</i></p>	<p><u>Circles</u></p> <p>12.57cm² 50.27cm²</p>
---	---	--	---	---

continued over...

*Solutions continued***GEM Challenge No. 16**

<u>Geysers</u>	<u>Marco Polo</u>	<u>King Cobra</u>	<u>Verbs</u>	<u>Triangular Numbers</u>
1. a geyser is a hot spring that erupts periodically, ejecting a column of hot water and steam into the air 2. On Triton the geysers appear to be driven by solar heating. The nitrogen may erupt to heights of 8 km. 3. <i>Teacher check</i>	1. Marco Polo journeyed to China with his father Niccolo and his uncle Maffeo. 2. The Silk Road. 3. <i>Teacher Check</i>	1. it will hiss, rear up, and flatten its neck ribs into a hood 2. it will only stop growing when it dies.	<i>Teacher check</i>	0 00 000 0000 00000 000000 0000000 00000000 000000000 0000000000 55

GEM Challenge No. 17

<u>Leaning Tower of Pisa</u>	<u>Tutankhamen</u>	<u>Photosynthesis</u>	<u>Vocabulary</u>	<u>Number</u>
• 1173 • 5.5 degrees • 3 620kg • yes	• an Ancient Egyptian king (pharaoh) • 1922; Howard Carter • Valley of the Kings • gold and other treasures	▪ the process plants use to change water and carbon dioxide into sugar they can use for food ▪ <i>teacher check</i>	i) hesitant <i>cautious</i> ii) cygnet <i>baby swan</i> iii) vibrant <i>energetic</i> iv) solemn <i>serious</i>	Prime Numbers (red) 2, 3, 5, 11, 17, 23, 29, 37 Square Numbers (blue) 4, 9, 16, 25, 36 Challenge Cube Numbers (green) 8, 27

GEM Challenge No. 18

<u>Bird of Paradise</u>	<u>Tornadoes</u>	<u>Ancient Egypt</u>	<u>Silent Letters</u>	<u>Triangles</u>
▪ 43 ▪ New Guinea ▪ no, they don't ▪ forests ▪ upside down	▪ air ▪ cumulonimbus ▪ violent ▪ 1979	▪ tombs ▪ about 80 ▪ Giza ▪ the pharaoh Khufu	palm receipt rhyme whistle ghost autumn comb knuckle wheat thumb gnome thistle tomb knight	<i>Teacher check</i>

continued over...

Solutions continued

GEM Challenge No. 19

<u>Clouds</u>	<u>Extinct Animals</u>	<u>Charlie Chaplin</u>	<u>Plurals</u>	<u>Division</u>
<ul style="list-style-type: none"> the branch of meteorology in which clouds are studied when water vapour condenses it forms small droplets or ice crystals; when surrounded by billions of other droplets or crystals they become visible as clouds Examples: cirrus (wispy), stratus (dense and grey), cumulus (dense, woolly), cumulonimbus (dark, stormy) 	<p><i>Teacher check</i></p> <p>(Eusmilus is an extinct mammal related to cats. It lived in France and parts of North America sometime between 28 and 30 million years ago).</p>	<ul style="list-style-type: none"> Charlie Chaplin was an English comic actor in the era of silent films. The Tramp: a vagrant with the refined manners and dignity of a gentleman who wears a tight coat, oversized pants and shoes, a derby or bowler hat, a bamboo cane, and his signature square moustache. 	<p><i>Some horses hurt their hooves when they stepped on some jagged rocks beside some old gum trees.</i></p>	<p>1)</p> $4 \div 8 = \frac{1}{2}$ $4 \div 2 = 2$ $4 \div \frac{1}{2} = 8$ $4 \div \frac{1}{8} = 32$ $4 \div \frac{1}{32} = 128$ <p>2) larger</p> <p>3) $4 \div \text{one thousandth} = 4\,000$</p> <p>4) $4 \div \text{one billionth} = 4\,000\,000\,000$</p>

GEM Challenge No. 20

<u>Bats</u>	<u>Beethoven</u>	<u>Ferdinand Magellan</u>	<u>Proverbs</u>	<u>Problem Solving</u>
<ul style="list-style-type: none"> sound waves by the sound of the echo it sends back its size, shape and texture to navigate in the dark and to find food 	<ul style="list-style-type: none"> Germany his grandfather Ludwig and his father Johann his father, Johann 12 Vienna hearing 	<ul style="list-style-type: none"> 1480; Portugal The Queen went to sea Spain was looking for a better sea route to Asia the strait at the bottom of South America one 	<p><i>Teacher check</i></p>	<p>Farmer Smith (he paid less per kg)</p>

GEM Challenge No. 21

<u>Solar Power</u>	<u>Sir Edmund Hillary</u>	<u>Stradivarius Violins</u>	<u>Homophones</u>	<u>Multiples</u>
<ul style="list-style-type: none"> photosynthesis desalination pollution-free; inexpensive; few problems with waste disposal; low operating costs 	<ul style="list-style-type: none"> New Zealand The Alps Tenzing Norgay Antarctica 	<ul style="list-style-type: none"> Italy 1698-1720 willow fewer than 700 	<p><i>Teacher check</i></p>	<p>8, 56, 64, 96, 104, 120</p>

continued over...

*Solutions continued***GEM Challenge No. 22**

<u>Wrights' Bi-plane</u>	<u>Buddhism</u>	<u>Robert Hooke</u>	<u>Tense</u>	<u>Measurement</u>
<ul style="list-style-type: none"> ▪ The Wright Flyer <i>or</i> Kitty Hawk ▪ 1903 ▪ two ▪ lying on his stomach on the lower wing with his head toward the front of the plane ▪ he moved a cradle attached to his hips 	<ul style="list-style-type: none"> ▪ to do no evil; to cultivate good; to purify one's mind ▪ about 566 BC; Nepal ▪ to seek the meaning of the suffering he saw around him ▪ meditated ▪ 45 	<ul style="list-style-type: none"> ▪ mechanical toys ▪ circular pendulum ▪ March, 1666 ▪ a marine telescope 	<p>I went to the beach. I did some swimming first and then I caught a few waves.</p> <p>I'm going on holidays to Bali. On my first day there I'll do some shopping and buy a few souvenirs. After that I'll spend every day by the side of the pool.</p>	2 450 780

GEM Challenge No. 23

<u>Respiratory System</u>	<u>The Aztecs</u>	<u>Earth's Atmosphere</u>	<u>Collective Nouns</u>	<u>Area</u>
<ul style="list-style-type: none"> ▪ the blood ▪ carbon dioxide ▪ the mouth and nose ▪ the diaphragm 	<ul style="list-style-type: none"> ▪ Mexico ▪ 1519; Hernan Cortez ▪ The Aztecs' capital city ▪ Astronomy and Medicine ▪ An Aztec emperor 	<ul style="list-style-type: none"> ▪ gases ▪ 21% ▪ ultraviolet radiation ▪ 480 km thick ▪ the Troposphere 	<p>fish-school bees-swarm birds-flock buffalo-herd lions-pride dolphins-pod ants-colony</p>	a circle with diameter 8 cm

GEM Challenge No. 24

<u>Amphibians</u>	<u>Australian Prime Ministers</u>	<u>Rodin</u>	<u>Punctuation</u>	<u>Shapes</u>
<ul style="list-style-type: none"> ▪ gills ▪ the temperature of their environment ▪ urodeles ▪ toads 	<ul style="list-style-type: none"> ▪ Edmund Barton ▪ Alfred Deakin & Andrew Fisher ▪ 19 ▪ Paul Keating 	<ul style="list-style-type: none"> ▪ broken nose ▪ John the Baptist ▪ marble 	<p>"The capital city of England is London," said Alice.</p> <p>"Yes I know," replied Ben, "it's the biggest city in the whole of Britain."</p> <p>Then Alice added, "Did you know Uncle Tom's going to England with Sarah's father?"</p>	<ul style="list-style-type: none"> ▪ 9 edges ▪ 5 vertices ▪ 9 faces

continued over...

Solutions continued

GEM Challenge No. 25

<u><i>Carl Linnaeus</i></u>	<u><i>Socrates</i></u>	<u><i>Shirley Temple</i></u>	<u><i>Punctuation</i></u>	<u><i>Factors</i></u>
<ul style="list-style-type: none"> the science of describing, categorizing and naming organisms to classify plants and animals 4 400 animals; 7 700 plants two 	<ul style="list-style-type: none"> a philosopher in ancient Greece 470-399 BC Plato Athens 	<ul style="list-style-type: none"> she was a child movie star who could dance and sing a visiting film director chose her from her dance class tap dancing 	<p>Mrs Brown's cat Fluffy hurt one of its paws.</p> <p>Mrs Brown took Fluffy to the vet who said, "I think we should keep Fluffy here overnight."</p> <p>"Oh alright," replied Mrs Brown, "shall I pick her up at 10 o'clock in the morning?"</p>	<p>48</p> <p>(1, 2, 3, 4, 6, 8, 12, 16, 24, 48)</p>

GEM Challenge No. 26

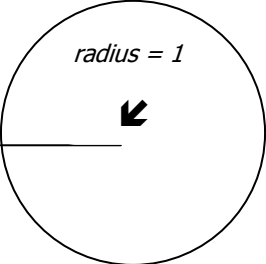
<u><i>Genetics</i></u>	<u><i>Rubber</i></u>	<u><i>Nautilus</i></u>	<u><i>Fairy Tales</i></u>	<u><i>Problem Solving</i></u>
<ul style="list-style-type: none"> characteristics, features, qualities the offspring of parents with dissimilar genetic make-up 7 more likely to appear in future generations 	<ul style="list-style-type: none"> synthetic rubber (produced artificially) the sap Teacher check 	<ul style="list-style-type: none"> primitive eyes; 90 tentacles; no suckers Indonesia and Australia 	<ul style="list-style-type: none"> Teacher check 	<p>7</p>

GEM Challenge No. 27

<u><i>Asteroids</i></u>	<u><i>Court Jester</i></u>	<u><i>Trilobites</i></u>	<u><i>Adverbs</i></u>	<u><i>Time</i></u>
<ul style="list-style-type: none"> Mars and Jupiter 5 000 Hayabusa 	<ul style="list-style-type: none"> clowns who entertained royalty in the Middle Ages clowning and the telling of riddles he insulted too many important people hidden in a giant pie 	<ol style="list-style-type: none"> extinct arthropods of the class Trilobita; dinosaurs had horns on their head sharks (and other early fish) all continents they show soft body parts like legs, gills and antennae 	<p>Teacher check</p>	<p>3 hours 24 minutes 42 seconds</p>

continued over...

Solutions continued**GEM Challenge No. 28**

<u>Latitude & Longitude</u> <ul style="list-style-type: none"> lines of latitude longitude Prime Meridian 60; 60 satellites 	<u>Louis Pasteur</u> <ul style="list-style-type: none"> pasteurization: the process which stops milk and wine from going sour the theory that life can arise spontaneously in organic substances preparations used to protect against diseases Pasteur vaccinated Joseph against rabies after Joseph was mauled by a dog no 	<u>Ancient Rome</u> <ul style="list-style-type: none"> the arch, the baked brick and the use of cement and concrete a temple to all the gods the Roman Empire was very big and included people with differing cultures slaves worked on farms, as house servants, cooks, factory hands, etc 	<u>JK Rowling & Roald Dahl</u> <p><i>Teacher check</i></p>	<u>Circles</u> <p>Sally: My circle has a radius of 1 unit.</p> 
---	---	--	---	--

GEM Challenge No. 29

<u>Telescopes</u> <ul style="list-style-type: none"> about 1608 Galileo Galilei the Hubble Space Telescope <i>Teacher check</i> 	<u>Galleons</u> <ul style="list-style-type: none"> large, multi-decked sailing ships used in Europe between the 16th and 18th centuries treasure oak; pine brig 	<u>The Lute</u> <ul style="list-style-type: none"> the Strings family lutenist, lutanist or lutist no (wood) a teardrop 	<u>Adjectives</u> <ol style="list-style-type: none"> mysterious tragic competitive circular mountainous adventurous telescopic golden triangular shadowy 	<u>Volume and Capacity</u> <p>the sphere</p>
--	--	--	---	---

GEM Challenge No. 30

<u>Hummingbirds</u> <ul style="list-style-type: none"> depending on the species, 15-80 times per second they pollinate the flowers two 	<u>Japan</u> <ul style="list-style-type: none"> in the Pacific Ocean, to the east of China, Korea, and Russia because the Japanese characters of its name mean 'sun-origin' <i>or/and</i> it's one of the first nations to see the morning sun. 3 000+ (<i>4 main ones</i>) over 30 million 	<u>Antibiotics</u> <ul style="list-style-type: none"> a drug that kills or prevents the growth of bacteria viral and fungal they targeted disease without harming the host multiplying some produced antibiotic substances 	<u>Synonyms & Antonyms</u> <p><i>Teacher check</i></p>	<u>Patterns</u> <p>Subtract 1 more each time</p> <p>37, 23, 8</p>
--	--	--	---	--

GEM Answers

Name..... Date.....