The Physical World

Keep on movin'

LIBRARY SEARCH FOR THIS ←→

RESEARCH (1) Find out how the speedometer on a car works.
(2) Speedos on boats are a different design. Find out how the speedo on a boat works.

GALILEO developed a famous "thought experiment" relating to the movement of objects in a frictionless environment. Use an encyclopedia (book or CD -rom) to find out what this was and draw a diagram to represent it.

RULE: SPEED EQUALS DISTANCE TRAVELLED DIVIDED BY TIME TAKEN

Speed is measured in metres per second. Use this rule to calculate speed for ...
(1) The Earth moves at 29.6 km per second on its journey around the sun.
(2) A snail travels 20 cm per minute.
(3) Sound takes about 3 seconds to travel 1 km.
Design an experiment to measure the speed of a car in metres per second. Include an aim and hypothesis!

DESIGN A FLYING PAPER DART

In many motions, friction is the most important slowing force. Air friction can be a real nuisance for flying things. Your task is to make an object out of paper which will fly a long way when thrown from your hand. Stick this into your book. Why is its design so successful?

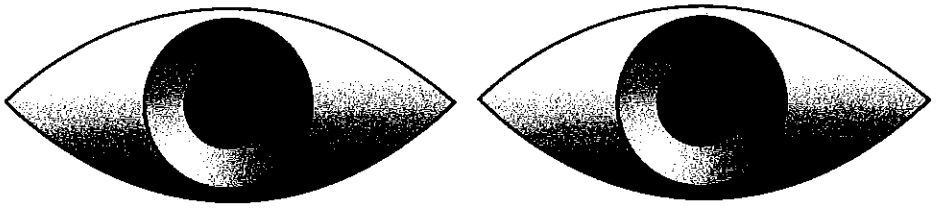
CHECK LIST

- Galileo ☐
- Research ☐
- Dart ☐
- On the Road ☐
- Speed calculations ☐
- Parent signature ☐

FORCES are needed to _____ things. _____ (slowing down) requires an opposing force.
When an object is still, all the forces on it are _____.

ON THE ROAD Signs are found on the side of the road to limit speed. Draw as many of these as you can think of. Why are these signs needed? Where are you likely to find them?

SEE ... ING



MICROSCOPES

allow us to see very small objects. Use an encyclopaedia to find out where and when the microscope was first developed.

BLINDFOLD YOURSELF and sit still outside for five minutes. What do you hear, smell, feel? What else do you notice?

SOME PEOPLE say they can "see" the future. In what ways would life be different if we all could visualise tomorrow today?

FILL IN THE GAPS

_____ is one of our most important _____. Many _____ have difficulty _____ on some things. _____ lenses and _____ help to _____ images. Short-sighted people can only _____ on things to them. Things in the _____ are _____. Other people can become _____ sighted as they get _____. Things _____ to the eye are hard to _____ on.

UNSCRAMBLE these words and use a dictionary to find out their meaning.

FERLIOTENC

CARTNOEFIN

BARBOS

GAMIE

LITURDV

YOU WILL have looked at optical illusions in class. Design an image that can be viewed in two says.

EYES HAVE been said to be "the windows into our soul." What to you think this means?

CHECK LIST

- Microscopes ☐
- Blindfold ☐
- Some People ☐
- Unscramble ☐
- Eyes Have ☐
- You Will ☐
- Fill in the Gaps ☐
- Parent signature ☐

LIGHT AND COLOUR

IMAGINE you are a green leaf that turns into a bright orange one. Describe what it means to be **MARVELLED** at and admired by people who stand below you. Tell about how your colour is enjoyed by your animal friends who rest on the branches above you.

Look this word up!

LIST all the things you can think of that change colour?

CHECK LIST

Imagine	☐
List	☐
Binocular Vision	☐
Definitions	☐
Side Eyes	☐
Rainbow Colour	☐
Hmmm!	☐
Parent signature	☐

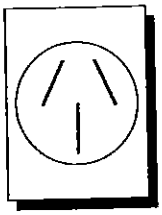
WHAT is binocular vision? What are its advantages?

LOOK up these words and write down what they mean:
(i) spectrum
(ii) dispersion
(iii) prism

WHAT are the advantages of side eyes? What sort of animals are likely to have them? List some of these ...

WHAT are the colours of the rainbow? Draw these.

WHY are some street lights orange, while others are white? What makes their colour different?



SHOCKING HOMEWORK

THIS is a simple design found in your home a lot (a 3-pin plug socket). In what ways might this design be used on the ocean floor or in space?

CLUES:

(1) These are used to block rivers to store water for electricity generation.
(2) Used as an electricity source in mobile appliances.
(3) This is a measure of energy.
(4) Components connected end to end are said to be in _____.
(5) These flow in an electric current.
(6) A circuit in _____ provides an electron with a choice.
(7) Another word meaning to transport of to carry.
(8) _____ is measured in volts.
(9) The flow of _____ creates an electric current.

e	r	s	b	u	g	l	e	l	l	a	r	a	p
c	o	n	d	u	c	t	o	r	q	t	o	w	c
n	e	w	y	g	e	i	r	e	s	t	u	d	a
a	r	t	v	e	g	u	k	l	h	m	y	a	d
t	y	d	u	i	v	c	p	e	n	r	f	c	o
s	x	a	t	a	b	r	s	c	e	d	u	b	r
i	r	q	o	t	a	i	p	t	b	c	j	z	d
s	u	r	e	l	e	c	t	r	i	c	i	t	y
e	r	b	o	o	b	a	m	o	l	e	r	p	h
r	e	s	q	v	b	t	n	n	h	a	r	t	u

DRAW a picture to represent each of the following ways of making electricity.

STEAM | WATER | SUN | WIND | SEA

Describe the advantages and disadvantages of each.

Advantages	Disadvantages

IMAGINE life without electricity. Describe a day in the life of a 13-year-old student living in a no-electricity situation.

CHECK LIST

- Three-pin Plug ☐
- Word Find ☐
- Draw ☐
- Imagine ☐
- Find ☐
- Household Appliances ☐
- Parent signature ☐

RESEARCH

Find out who discovered electricity and when. Write down the 10 most important changes this discovery caused.

HOUSEHOLD APPLIANCES

use electricity to perform certain jobs for us. In what ways could you improvea toaster?

THE RULES

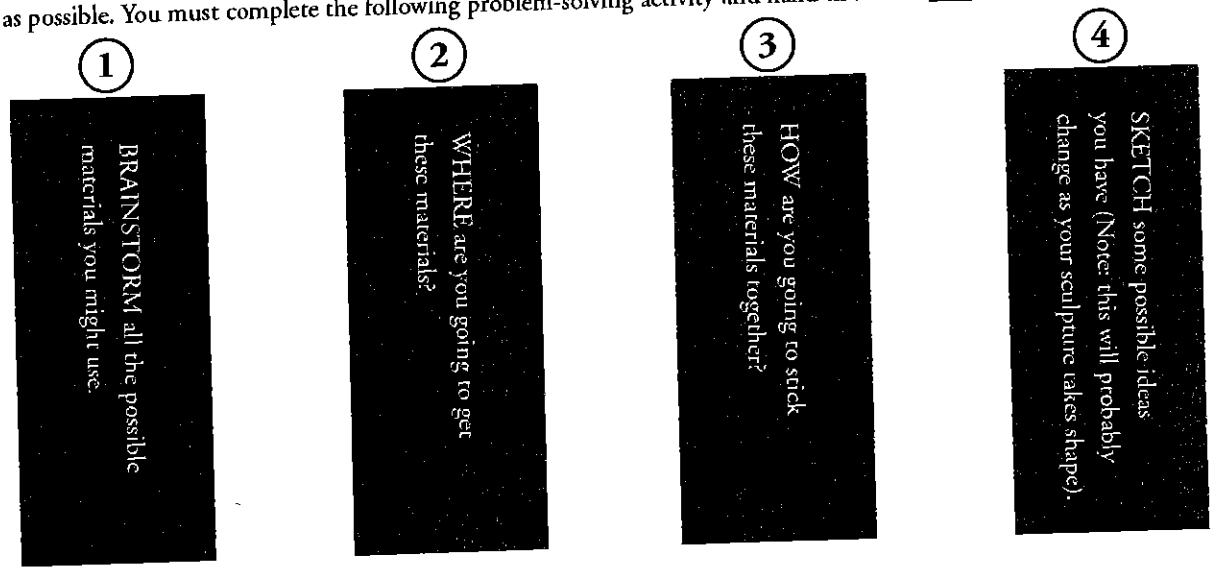
WRITE down a set of rules we should all abide by when using electricity.

FIND OUT what electricity has to do with lightning and thunder.

The Material World

CREATIVE METAL SCULPTURE

YOU ARE TO CONSTRUCT a sculpture using as many different sorts of scrap or waste metal as possible. You must complete the following problem-solving activity and hand this in on _____.



YOU MUST PROVIDE a name for your sculpture and include a fact-sheet which identifies the different metals you have used, why you have used these metals and what properties the metals possess (this is why the metals were chosen for the original product which is now scrap or waste).

ASSESSMENT:

(a) A variety of metals used (3 marks).
(b) Solid construction (3 marks).
(c) Fact sheet:
  (i) Relate properties of metals to use (5 marks).
  (ii) Thoroughness (all metals described (5 marks).
(d) Visual Impact (3 marks).
(e) Problem-solving activity (5 marks).
(f) Sculpture named (2 marks).

MATTER

CHECK LIST

- ☐ Fill in the Gaps
- ☐ Three States of Matter
- ☐ Crystals
- ☐ Imagine
- ☐ Brainfood
- ☐ Jeopardy
- ☐ Parent signature

FILL IN THE GAPS

Any substance that takes up space and which can be measured is called _____. This is what we know about matter.

- Matter is made up of _____ particles.
- Different _____ have particles of different _____.
- Compounds are made when _____ of different elements join _____.
- Particles which make up all matter are constantly _____.
- The _____ the temperatures, the _____ the particles move around.

THERE ARE THREE STATES OF MATTER:

Give examples of each. Draw a picture of each state to show how particles are arranged.

CRYSTALS are solids which make a regular shape. Snow is made of water crystals. Look up an encyclopaedia and find some pictures of snow crystals. Draw one or two of these (into your book). Make up your own snow crystal, draw it and give it a name. How many types of snow are there?

IMAGINE you are a water particle in a pot on a stove. Describe what happens to you and how you feel when the gas is turned on and you heat up to boiling point.

BRAINFOOD

In what ways would life be different if ice didn't form?

JEOPARDY: You are given the following answers. YOU must come up with the questions. Use a dictionary or science textbook to help you.

SOLVENT

SOLUTION

INSOLUBLE

IMMISCIBLE

DISSOLVE

SOLUTE

SOLUBLE

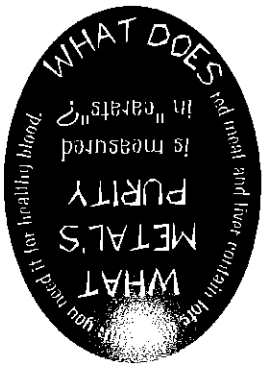
MISCIBLE

METALS NON METALS

WORD FIND

This word find contains the names of 10 physical properties which allow us to tell the difference between metals and non-metals.

M	E	L	T	I	N	G	P	O	I	N	T
M	L	K	S	E	A	B	E	U	D	F	D
S	E	R	C	F	W	I	U	L	H	G	H
R	C	E	E	T	A	T	S	H	S	E	Y
E	T	P	L	A	V	U	A	N	N	A	T
I	R	L	I	L	U	S	T	R	E	I	I
L	I	Y	T	L	E	G	H	L	D	D	R
Q	C	H	C	E	O	K	E	J	R	K	O
A	A	A	U	V	C	C	R	R	K	B	N
T	L	V	D	B	T	H	M	G	L	C	O
U	H	M	G	D	S	J	A	K	F	D	S
M	A	L	L	E	A	B	L	E	E	V	L



FILL IN THE GAPS

All matter is _____ up of elements. There are _____ 110 elements _____ on Earth and these are _____ together in the periodic table. These _____ are put into _____ according to their physical _____. The two main groups are metals and _____ _____.

PLASTICS

PLASTICS are increasingly replacing metals when making cars. List the advantages and disadvantages of this.

ADVANTAGES
DISADVANTAGES

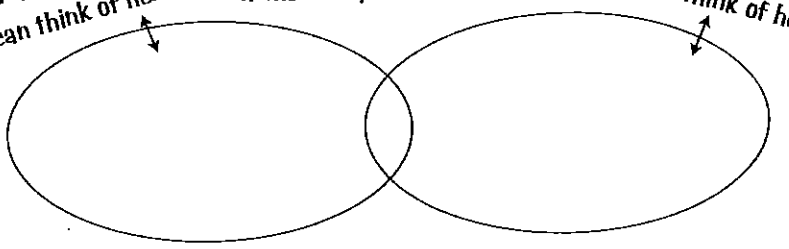
CHECK LIST

- Word Find ☐
- What Questions ☐
- Plastics ☐
- Fill in the Gaps ☐
- Venn Diagram ☐
- Parent signature ☐

WRITE all the non-metals you can think of here!

ARE THERE any substances which have properties of both metals and non-metals? If there are, write them here.

WRITE all the metals you can think of here!



METALS MAGIC

RESEARCH

Choose one of these metals to research in more detail. Answer THESE QUESTIONS:

- Is metal found naturally or is it made by humans? Briefly describe either how it is made or how it is mined. Include Diagrams.
- Explain at least one use of the metal from the past.
- Does the metal have any famous associations?
- Present this information in a creative way.
- Describe what life would be like in the absence of this metal. What losses would we suffer?
- Explain two other modern-day uses of this metal.

LISTING

Make a list of all the different metals you can find in your house. Explain what they are used for and what properties they have which makes them ideal for the job they do.

CREATE A NAME

Create a name for a "heavy metal" band and design a CD cover for their latest release. What is a "heavy metal" in scientific terms? How does the term heavy metal relate to the type of music played Hrmmm Brooooom!!

FILL IN THE GAPS

The following is a list of some metals and non-metals. Fill in the gaps and give one example of how each is used.

_ _ _ M _ N _ _ M

_ E _ _ C _ Y

_ _ L P _ _ _

T_ T _ _ I _ _

I _ _ N

_ _ _ B _N

G_ _ P _ I _ _

_ O _ P _ _

O_ Y _ _ _

C _ L _ I _ _

_ _ N _

_ _ B _ _T

CHECK LIST

- Research ☐
- Create a Name ☐
- Listing ☐
- Fill in the Gaps ☐
- Relationships ☐
- Parent signature ☐

RELATIONSHIPS

Between unlikely things:
What are the similarities between a raindrop and a diamond?

METALS USUALLY:

- ARE SOLIDS
- CONDUCT ELECTRICITY
- CONDUCT HEAT
- POLISH UP TO BE SHINY

Make a list of all the different metals you can find in your house. Explain what they are used for and what properties they have which makes them ideal for the job they do. Choose one of these metals to research in more detail. Answer these questions:

(1) Is the metal found naturally or is it made by humans? Briefly describe either how it is made or how it is mined. Include diagrams.

(2) Explain at least one use of the metal from the past.

(3) Explain two other modern-day uses of this metal.

(4) Describe what life would be like in the absence of this metal. What losses would we suffer?

(5) Does the metal have any famous associations?

(6) Present this information in a creative way.

MORE MATTER

FILL IN THE GAPS

Use these words to fill in the gaps: WATER, DISSOLVE, SUGAR, INSOLUBLE and SUSPENSION. If you add sugar to water, the _____ will dissolve the _____. When you add sugar to water, _____ is the solvent and _____ is the solute. Sugar will _____ in water to form a clear solution. Sand is _____ in water. This means it will not dissolvnd and water, instead forming a _____.

DRAW A PICTURE to

represent the water cycle. Use these words to label your picture:

CONDENSATION, RUN-OFF, EVAPORATION, PRECIPITATION.

LIST

five examples of substances changing between solids, liquids and gases around the home:

☐ ☐ ☐ ☐ ☐

CHECK LIST

Imagine	☐
Physical Self	☐
Handwriting	☐
Brainstorm	☐
Brainfood	☐
Gross!!	☐
Dear Sir	☐
???	☐
Parent signature	☐

HMMM!

Why are there gaps along railway lines?

My guess ...	Scientists say ...

RESEARCH

Who was Marie Curie and what did she discover?

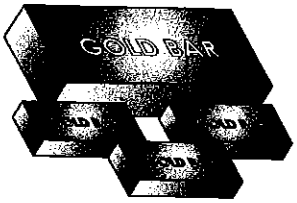
LOOK AT SOME

washing instruction labels on your clothes. Draw the different symbols you find and explain what they mean. What does washing clothes have to do with particles, solvents and solutes?

DESIGN AN EXPERIMENT

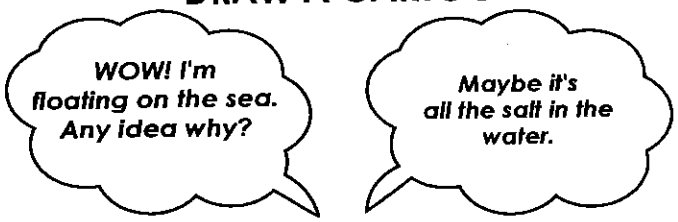
to answer this question - how do towels dry? Write an aim, hypothesis, method and carry out the experiment. What is the answer to the question?

NATURE'S RESOURCES



GOLD is used in many things, from computers to teeth. What are the properties of gold that make it so useful and valuable.

DRAW A CARTOON



Illustrate your cartoon around the speech bubbles. How do you think we get the salt from sea water for our table?

FILL IN THE GAPS

There are _____ resources found on Earth and _____ by humans. Plants can _____ many _____ out of just CO2, _____ and _____. Metals are found _____ but very few of these are _____ to use. Metal found in _____ or earth is called _____.

SEASHELLS are an important natural resource. Over millions of years they are crushed and buried, eventually becoming limestone which has many important uses. Design a seashell for a new animal that has been found off the coast of New Zealand.

BRAINFOOD

Rivers are one of nature's very valuable resources put to good use in New Zealand for electricity generation and recreation. In what ways can rivers be destructive? In what ways can they be creative?

CHECK LIST

- ☐ Cartoon
- ☐ Properties of Gold
- ☐ Fill in the Gaps
- ☐ Brainfood
- ☐ Research
- ☐ Seashell design
- ☐ Phrases
- ☐ Parent Signature

RESEARCH

Plants are another valuable resource and often used in medicine. Find out as much as you can about three of these and write a paragraph on each.

GOOD AS GOLD and BY THE LIGHT OF THE SILVERY MOON

THESE are phrases that relate to precious metals. Choose three important natural resources and write a phrase for each.

POLLUTION

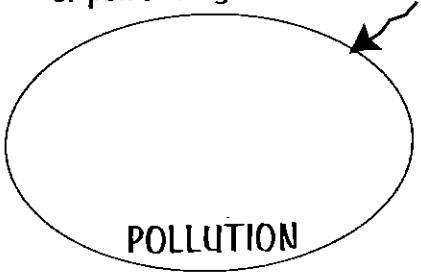
RESEARCH. Find out what the ozone layer is. What has created the hole? How can we stop the hole getting bigger? What is the effect of the ozone hole? What has the ozone hole got to do with pollution?

75 YEARS AGO there were far fewer cars on the road. List the advantages and disadvantages of increased car use since this time.

BRAINFOOD What are similarities between pollution and a forest?

DESCRIBE what it would be like to be a fish in a polluted stream, from the fish's point of view.

BRAINSTORM as many types of pollution you can think of.



CHECK LIST

- Research
- 75 Years Ago
- Brainfood
- Fish in a Polluted Stream
- Brainstorm
- List
- Fill in the Gaps
- Bumper Sticker
- Draw a Picture
- Parent signature

DRAW a picture to represent the connection between the greenhouse effect and global warming.

WHAT ARE THESE?

DESIGN a bumper sticker promoting a pollution-free environment.

LIST five ways that YOU create pollution. How could you reduce these?

1	2	3	4	5

FILL IN THE GAPS

Acid rain. When we burn _____ and coal we put _____ gases into the _____. These turn into _____ chemicals which _____ with water in the air to _____ acids which fall with _____ to _____ buildings, _____ lakes, and kill _____.

Planet Earth and Beyond

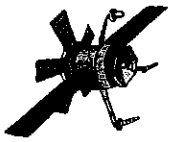
OUTER SPACE

DESIGN an exercise machine that could be used on the space shuttle. Draw it. Give it a name and describe how it works.

THE EARLY GREEKS imagined they saw the shapes of animals and gods in the patterns of stars. Some of these star signs became known as the "signs of the Zodiac." What star sign are you? What do astrologers believe can be found out from your star sign?

CHECK LIST

- Early Greeks ☐
- Design ☐
- Space Travel ☐
- What Year? ☐
- The Answer ☐
- Research ☐
- List ☐
- Describe(s) ☐
- Parent signature ☐



SPACE TRAVEL. Construct a pamphlet promoting a new holiday to an exotic plant. Think about transport, things to do, cost and food.

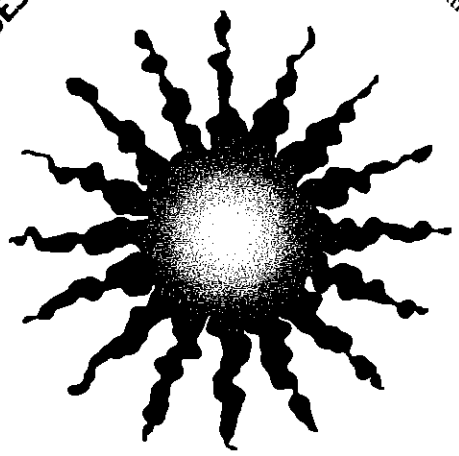
WHAT YEAR did humans first land on the moon? It is the answer to every important event in human history?

THE ANSWER is "grass".

RESEARCH the order of the planets from the sun. Develop a memory tool ( ) so you can remember the order of these.

DESCRIBE what it would be like living in a space station in 2075.

LIST heavy things that have no weight.



DESCRIBE the size of space.

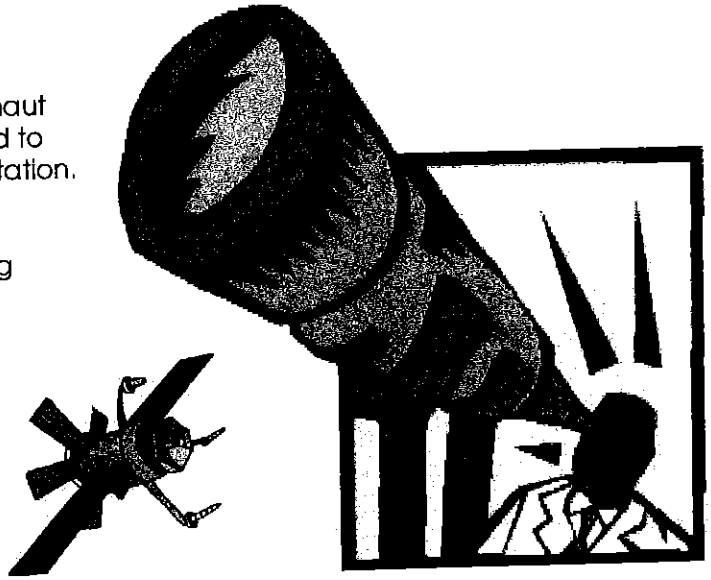
THE FUTURE

WHAT CAN WE DO TODAY

to make the future a better place?

POETRY

You are the only astronaut who has been selected to live on the first space station. You have just arrived. You are sitting in an oxygen bubble, looking through the telescope at Planet Earth. Write a poem about your feelings at this moment.

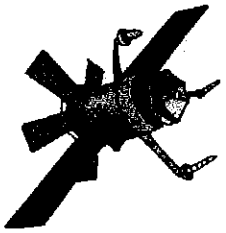


DESIGN A TIME TRAVEL MACHINE

that will allow you to move backwards and forwards through time.

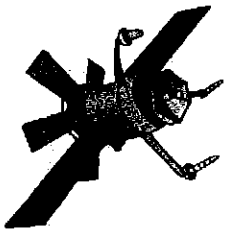
LAYOUT AN ADVERTISEMENT

that promotes life on Earth, rather than life on Mars. Include the more favourable environmental and climatic condition and of course anything else you can think of.



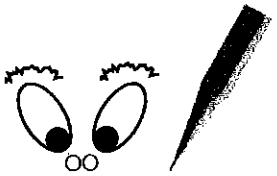
SITUATIONS VACANT

You have just got the hottest, most sought-after job on Earth . As a "Planet-hunter" you have special responsibilities. Write a job description for a Planet-hunter (check the job ads in the newspaper to see the language used in job ads).



MUSIC

Write lyrics and compose music for a national anthem for a new planet.



CHECK LIST

- Poetry ☐
- What Can ☐
- Design ☐
- Layout ☐
- Situations Vacant ☐
- Music ☐
- Parent signature ☐

PLANET EARTH

OBSERVE THE MOON over a week. Record the shape of the Moon using pictures. What do you notice? Try and explain the trend that appears.

Mon	Tues	Wed	Thurs	Fri	Sat	Sun

WHAT IS THE "MILKY WAY"? draw a picture to represent this.

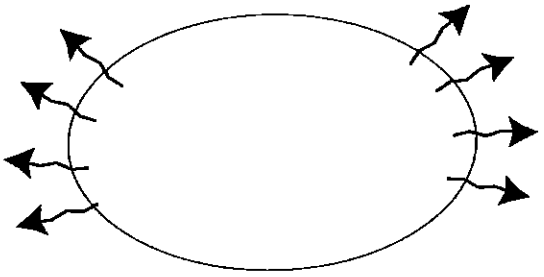
THERE IS MUCH research into developing human colonies on Mars. What are the advantages and disadvantages of humans living on Mars?

DISADVANTAGES
ADVANTAGES

CHECK LIST

- Observe the Moon ☐
- The Milky Way ☐
- Brainstorm ☐
- Research ☐
- Design a House ☐
- Brainfood ☐
- Wow! ☐
- Life on Mars ☐
- Parent signature ☐

BRAINSTORM. The atmosphere is one of the things that makes life possible on Earth. Brainstorm other conditions that make life on earth (and only Earth?) possible.



DESIGN A HOUSE that might be found on Mars in 2050. Label and describe its special features.

BRAINFOOD

In what ways would life be different if there were no stars?

RESEARCH the Big Bang theory to explain how our universe came into being. Using an encyclopaedia (book or CD rom) or the Internet as a resource describe this theory in your own words.

WOW!! As Earth spins on its axis, a person standing on the Equator will travel at 1666 km/hr. Why do we not notice ourserves travelling at this speed? What do you think?

The Living World

Plant Mania

FILL IN THE GAPS

(1) __ i __ __. Flavouring in toothpastes, gum and lollies.

(2) ____ p __ __. Used to make wine.

(3) __ l __ __ l __ __. These "grassy" sprouts go well in salads.

(4) __ __ c __. Major plant for the Asian diet. Grows in paddy fields.

(5) Red Hot __ __ __ l l __ P __ __ __ __ __ __. Really hot variety of a capsicum. These fruits are used dry or fresh in cooking. Also the name of a band.

(6) A __ __ __ v __ __ __. A plant used in face creams and shampoos (really good on sunburn).

WORD PREFIXES

Find out the meaning of these word prefixes and write them in the correct order.

sept hexa octa quadra mono tri nona penta

CHECK LIST

- Fill in the Gaps ☐
- Observe ☐
- Imagine ☐
- 20 Questions ☐
- Word Prefixes ☐
- Deciduous/ Evergreen ☐
- Parent signature ☐

OBSERVE as many plants as you can find in a defined area. List all the ways that they are the same. List all the ways that they are different.

IMAGINE

you are a Venus Flytrap about to catch a juicy fly. How are you going to do it?

THE ANSWER

is "plants." List 20 questions in your book.

PLANTS AND LEAVES

Plants that lose their leaves during autumn are said to be *deciduous*. Those plants that keep their leaves all the year round are said to be *evergreen*. List five examples of each.

Deciduous	*Evergreen*

PLANT FIND

There are nine words to find here.

e	x	b	d	l	e	a	f
p	c	u	e	w	z	h	i
o	p	d	k	c	g	f	j
c	e	y	w	a	t	e	r
s	t	z	n	b	h	l	w
o	i	v	a	j	i	o	z
r	o	o	t	s	i	i	n
c	l	u	i	n	t	t	g
i	e	s	v	s	e	e	d
m	q	r	e	l	o	p	m

WHAT is a native plant?

List six different native New Zealand plants.

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....

LIST the five steps in using a microscope.

1. .....
2. .....
3. .....
4. .....
5. .....

TELL ME about your favourite plant and why it's your favourite.

DRAW a picture of a native plant you can find at home.

LABEL THESE PARTS

HINT

Use these words: Bud, leaf, stem, roots, petiole, branch.

CHECK LIST

- Label Diagram ☐
- Draw a Native Plant ☐
- Favourite Plant ☐
- Using a Microscope ☐
- New Zealand Native Plants ☐
- Parent signature ☐

MORE ANIMALS

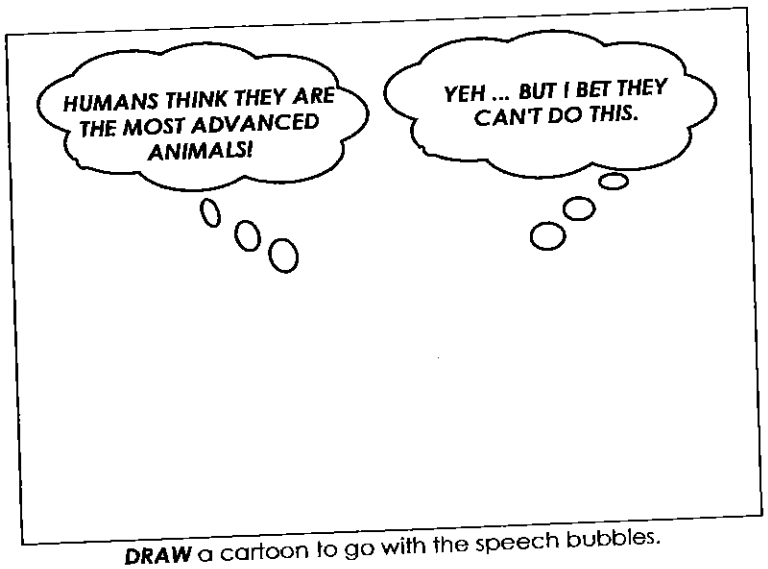
OBSERVE as many animals as you can in a defined area. List all the ways they are the same. List all the ways they are different.

EXTRA! Do fish blink?
Do worms have teeth?
Do snails have a heart?
Where do frogs sleep?

YOU have discovered a new animal that has never been seen before. You found it in the middle of the desert in temperatures of 40-45-deg C where there was no water. Draw a detailed labelled diagram of the animal. List and describe its special features.

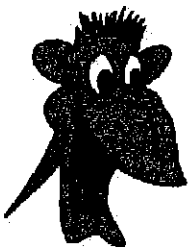
WHAT IS AN ANIMAL "PEST"?

What are NZ's main animal pests? Where have they come from? What is being done to control these pests?



DRAW a cartoon to go with the speech bubbles.

LEARN as much as you can about ants without reading anything!



1. MAMMALS
2. INSTINCTIVE
3. HABITAT
4. OMNIVORE
5. EYESIGHT
6. ADAPTATION
7. NUTRITION
8. INGEST
9. EXCRETE
10. DIGEST

YOU are provided with the following answers and YOU must come up with the questions.

LIST as many New Zealand native animals as you can think of.

CHECK LIST

- ☐ Questions for Answers
- ☐ Cartoon
- ☐ List of Native Animals
- ☐ Learning About Ants
- ☐ Extra
- ☐ Drawing of New Animal
- ☐ Observe
- ☐ Animal Pests
- ☐ Parent signature

ANIMAL SURVIVAL AND SENSES

WHAT ARE the advantages and disadvantages of cloning animals, including humans?

ADVANTAGES	DISADVANTAGES

ANIMALS LIVE in different habitats or surroundings. Describe YOUR habitat.

SCIENCE IN THE NEWS
Cut out a newspaper article about something to do with science. What is the science in the article?

DESCRIBE WEATHER CONDITIONS
in a desert. What can animals do to deal with each of these?

IN NEW ZEALAND what group of animals has the highest/lowest BIOMASS and what groups would fit inbetween?

Look this word up in the dictionary!

GENETIC ENGINEERING is allowing the possibility of mixing the genetic material of very different animals to produce bizarre offspring. Draw an animal that would result from a sheep mother and a duck father.

IMAGINE YOUR ARE A MOUSE EXPLORING A KITCHEN.
Write a short story describing the kitchen, referring to what you notice through each of your senses.

CHECK LIST

- ☐ Science in the News
- ☐ Describe Weather
- ☐ Advantages / Disadvantages of Cloning
- ☐ Animals Live
- ☐ Imagine
- ☐ Genetic Engineering
- ☐ Biomass Pyramid
- ☐ Parent signature

ANIMAL CHIT CHAT

WHAT do we mean when we call a person an "animal"? Is this fair?

FILL IN THE GAPS

Most animals live in _____.

This means they _____ with each otherand have to _____ to live together. We call this group living communication _____. Most _____ is about finding a _____ protecting each other and _____ food.

OBSERVE an animal around your home. Draw and describe how your animal expresses these emotions:

ANGER CURIOSITY

SADNESS WORRY

HAPPINESS LOVE

CHECK LIST

List	☐
Unscramble	☐
Animal Territories	☐
Observe Emotions	☐
What?	☐
In What Ways?	☐
Fill in the Gaps	☐
Parent signature	☐

LIST as many different TYPES of animals that you can think of.

MANY ANIMALS live in a defined area that has definite boundaries and needs to be defended. This area is called a territory. Here animals find food and mates. Give an example of how an animal defends its territory and another example of how humans defend their territory.

	Territory	Animal e.g.	Human e.g.

UNSCRAMBLE these words that describe animal feeling:

OBERIRSEHV

EVANORCISR

IEOSMONVER

DOSPERRAT

CGVSERSEVAN

Give an example of each

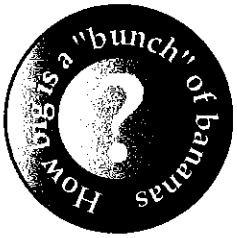
BANANA REPUBLIC

HUMANS peel bananas from the end that has been broken off from the bunch. All chimpanzees peel a banana from the other end.

WHY are bananas a curved shape or bent? Why are they not straight? Suggest some of your own reasons for this.

WHAT are the brown dots that appear on ripening bananas?

WHY are bananas picked when they are green?



SOME people enjoy eating banana and other dehydrated fruit. Describe how fruit is dehydrated.

FIND OUT out the genus and species name of banana palms (clue: banana palms can be bought from a garden centre.

WHICH animals eat bananas? List all those you can think of.

CHECK LIST

- Animals List ☐
- Find Out Species/Genus ☐
- All Questions ☐
- Observe ☐
- Dehydrated Fruit ☐
- Design an Experiment ☐
- Food Groups ☐
- Parent signature ☐

DESIGN AN EXPERIMENT

What could you do to increase the shelf life of a picked banana?

Develop a plan to investigate how to best improve the shelf life of a banana.

Include ... AIM, HYPOTHESIS, METHOD (VARIABLES, CONTROL, REPETITION), RESULTS YOU WOULD RECORD.

OBSERVE the ripening of a banana over 10 days. Draw (or record in any way you think is appropriate) the changes that you observe in the banana over this time. What factors influence the ripening of your banana?

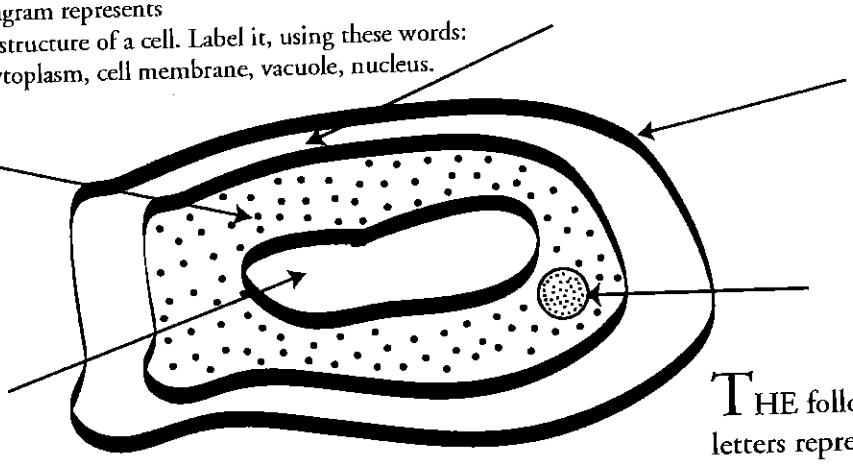
FOOD GROUPS

Find out the food groups contained in a banana. Why are bananas considered to be so healthy and good for us? What is meant by a balanced diet? Could we live on bananas alone?

it's alive !

LIST all the ways that a flame is a living thing and why it is not a living thing.

THIS diagram represents the general structure of a cell. Label it, using these words: cell wall, cytoplasm, cell membrane, vacuole, nucleus.



PLACE 5 examples of living things and non-living things from everyday life into each column.

NON-LIVING	
LIVING	

THE following letters represent features of living things. What does each stand for?

M_____

R_____

S_____

G_____

R_____

E_____

N_____

DRAW a bumper sticker that promotes living life to the full.

Is a "live wire" really alive, in a biological sense?

CHECK LIST

- Label Cell ☐
- List ☐
- MRSGREN ☐
- "Life" Meanings ☐
- Maori Myths and Legends ☐
- "Live Wire" ☐
- Bumper Sticker ☐
- Living/ Non-living ☐
- Parent signature ☐

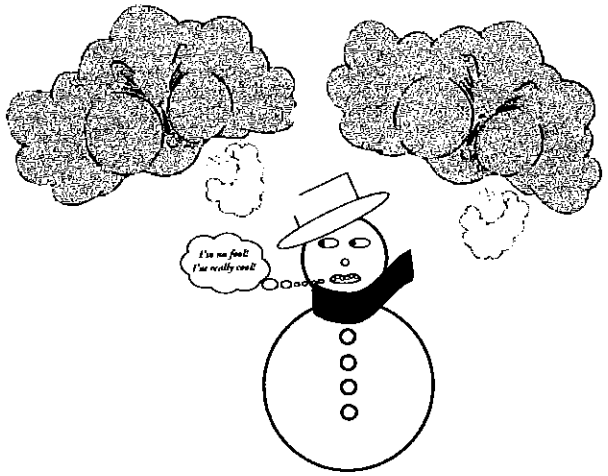
MAORI have developed many myths and legends that give LIFE to what we scientifically think of as our NON-LIVING natural environment. Write a brief summary of one of these.

LOOK up the word "life" in a dictionary. Write different sentences to show the different ways we can use the word "life."

IT'S HOT ... OR NOT!

FILL IN THE GAPS

Most animals _____ on their surroundings _____ warmth.
These _____ are often called _____. On a warm day a cold-blooded animal may _____ warm _____. Other animals, all birds and some _____ do not _____ on the _____ for warmth. They use _____ from food to heat them up. This allows these animals to _____ their body _____ at a _____ steady level.



HUMANS respond in several ways to extremes in temperature. Draw two outlines of human bodies. On one, label three ways humans respond to very cold conditions. On the other, label three ways humans respond to very warm conditions.

HUMANS are WARM-BLOODED. In what ways would life be different if humans were cold-blooded?

What does this mean?

HYPOTHERMIA

What is it?
Putting a blanket over a hypothermic person is not enough to heat them up. What can YOU do to heat up a hypothermic person?

HUMANS have a body temperature of 37 degrees Celsius. How do we keep this temperature constant in an ever-changing environment?

WHAT do the following word prefixes mean:

MICRO	MILLI	CENTI
KILO		MEGA

DESIGN a car where the engine is cooled by air rather than water.

CHECK LIST

- ☐ IDesign a Car
- ☐ Hypothermia
- ☐ Fill in the Gaps
- ☐ Humans to Hot/Cold
- ☐ Word Prefixes
- ☐ Human Body Temperature
- ☐ Test Ice-cubes
- ☐ Cold-blooded Humans?
- ☐ Parent signature

TEST whether ice-cubes form fater with hot or cold water. Try and explain your result.

Science Issues

FRANKENSTEIN

The central idea in Mary Shelley's story of Frankenstein was a scientist's loss of control of his creation. This idea still worries us today. What areas of science do we worry about today and why?

MOVIES

39 films have been made about the Frankenstein story. Name the ones you have seen.

Find out as much as you can about each of these. What was the science behind each? Why are these two events important in history?

ATOMIC BOMB	
EUGENICS	

SUBJECTIVE means

_____

OBJECTIVE means

_____

In what ways are these words different, in what ways are they the same?

Draw a cartoon to represent the bringing to life of Frankenstein's monster.

Mary Shelley's mother died giving birth to her. This was not uncommon in 1799. Can you explain why?

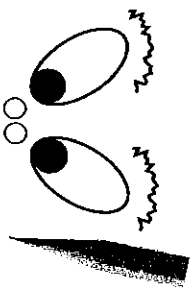
Draw a picture of a scientist. Around your picture write words you would use to describe scientists.

How did Frankenstein bring his monster to life? Is this really possible?

Mary Shelley was 18 in 1818, when she wrote the story of Frankenstein. Who was Frankenstein?

CHECK LIST

- ☐ Worries
- ☐ Subjective/Objective
- ☐ Cartoon
- ☐ Movies
- ☐ Problems of Birth
- ☐ Picture of a Scientist
- ☐ Stereotype?
- ☐ Monster to Life
- ☐ Who was Frankenstein?
- ☐ Parent Signature



SCIENCE AND THE NEWS

(1) CUT OUT an article that YOU think is scientific and stick it into your book.

(2) BRIEFLY describe in your own words what the article is about (three or four lines!)

(3) DRAW a picture or diagram to represent what the article is about.

(4) UNDERLINE any ""Science" words in the article. Find out what these mean and write each word and its meaning in your book.

(5) WHY would you describe this article as "scientific" or "related" to science.

SCIENCE ISSUES

IMAGINE YOU ARE A SCIENTIST WHO HAS BEEN ASKED TO HELP DEAL WITH A CRISIS

(choose a crisis that has been reported in the newspaper or on TV recently)

Answer these questions in detail:

1. WHAT IS the situation?

2. WHAT ARE your goals?

3. WHAT FACTS do you have about the situation? What do you need to know? How could you get the information you do not have?

4. GIVEN WHAT you know, what ideas do you have for coping with the problem? What are some possible solutions?

5. DESCRIBE YOUR plan to solve the crisis. What are the good points of your plan? What benefits do you predict?

6. WHAT ARE the weaknesses of your plan? What possible dangers or problems do you forsee?

7. WHAT DO you now need to do to carry out your plan.

LOCAL ENVIRONMENTAL ISSUE

IMAGINE YOU ARE A SCIENTIST WHO HAS BEEN ASKED TO HELP DEAL WITH A LOCAL ENVIRONMENTAL ISSUE

(choose a local issue that has been reported in your local newspaper)

Answer these questions in detail:

1. WHAT IS the situation?

2. WHAT ARE your goals?

3. WHAT FACTS do you have about the situation? What do you need to know? How could you get the information you do not have?

4. GIVEN WHAT you know, what ideas do you have for coping with the problem? What are some possible solutions?

5. DESCRIBE YOUR plan to deal with the issue. What are the good points of your plan? What benefits do you predict?

6. WHAT ARE the weaknesses of your plan? What possible dangers or problems do you forsee?

7. WHAT DO you now need to do to carry out your plan.

Thematic

(Integrated)

Science Sheets

CLICK ON TO ENERGY

HUMANS get their energy from five different foods, stick these in your book. Write a paragraph describing the differences in our chosen foods.

OIL, COAL AND GAS are all examples of fossil fuels. Imagine a world without fossil fuels. In what ways would the things you do at weekends be the same? In what ways would they be different?

CHECK LIST

- Humans ☐
- Imagine ☐
- Research ☐
- Home ☐
- Brainstorm ☐
- Definitions ☐
- Fill in the Gaps ☐
- High/Low Energy Food ☐
- How Much? ☐
- Parent signature ☐

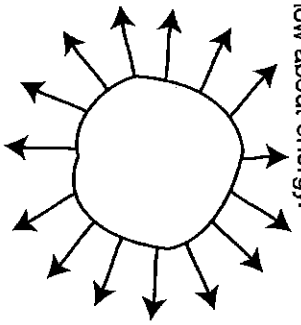
RESEARCH. Find out about a renewable energy resource. Draw a sticker to promote the use of this source of energy.

LIST ... Energy can be lost in lots of ways around the home. Register 10 ways we can save energy at home.

HOW MUCH? Look at a monthly energy bill. Multiply the cost by 12 to find out how much your family spends on electrical energy.

WRITE down everything you eat and drink in one day. Sort them into this table.

LOW ENERGY FOODS	
HIGH ENERGY FOODS	



BRAINSTORM all you already know about energy.

WRITE definitions for the words above.

Kinetic

Solar

Potential

Gravity

Elastic

Chemical

FILL IN THE GAPS

Energy is not a _____. It has _____ different forms. _____ can be changed from one _____ to another. Living _____need _____. Humans use much more _____ than other _____ things to make _____ easier and more _____.

CRIME BUSTERS

1 2 3 4 5

IMAGINE

YOU ARE A DETECTIVE. WHAT FIVE STEPS WOULD YOU FOLLOW TO SOLVE A CRIME?

PHYSICAL SELF

WRITE a detailed physical description of yourself.

HANDWRITING

DESIGN a new handwriting style for yourself. Include an example here:

Write a sentence with the hand you do not normally write with.

CHECK LIST

- Imagine ☐
- Physical Self ☐
- Handwriting ☐
- Brainstorm ☐
- Brainfood ☐
- Gross!! ☐
- Dear Sir ☐
- ??? ☐
- Parent signature ☐

BRAINSTORM

IN WHAT ways might a fingerprint be used in creating original or different products?

BRAINFOOD

WHAT are the similarities between a ballpoint pen and Deoxy Ribose Nucleic Acid (DNA)?

GROSS ! !

FORENSIC entomology is the _____ of insects in connection _____ crime _____. Different insects _____ on dead _____ at different times. This _____ helps investigators figure out the _____ of death of victims.

DEAR SIR ...

WRITE a letter to the editor of a newspaper describing how thieves in schools should be dealt with.

? ? ?

WHEN giving evidence in court, our memories are often not reliable. In what ways would life be different if memories were only kept for one year.

SCIENCE & TV

Choose a non-fiction TV programme that deals with science-related issues (eg, Beyond 2000, Our World) and complete the following tasks.

Watch the programme or part of the programme and write a report on it. In your report you must provide:

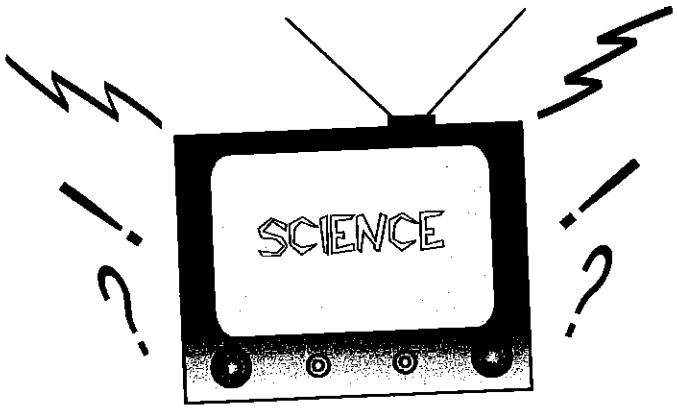
(1) The main topic/theme of the programme.

(2) A written description of what was shown in the programme.

(3) Draw a picture which represents what the programme is about.

(4) List at least four bits of information from the programme that are new to you/what you did not know previously.

(5) Does this programme portray science in a positive or negative way? Explain your answer.



MAY THE FORCE BE WITH YOU!

CURRENT AFFAIRS IN SCIENCE

Find a newspaper article that catches your attention. Cut it out. Say why you chose it? What is the science of the story?

CRAZY CARTOON

Draw pictures to match the words ...

Q: How do they manage to cope with (a) food (b) urine (3) air pressure?

I hope that these spacesuits are designed to deal with extra body fluids?

I hope so, too. Things are very pressing ... I need to .....!!

FILL THE GAPS

Forces _____ pushes _____ pulls. The _____ of gravity pulls _____ towards it. _____ the centre of the earth the _____ of gravity _____ be _____. This is because _____. The force _____ gravity is 10 N _____ kg. My mass is _____ kg. My weight is _____ N.

DESIGN/ PROBLEM SOLVING.

Your task is to think up, and describe, five ways to lose weight fairly quickly.

Sketch and/or describe

1 2 3 4 5

WORD FIND

Find the words that fit the clues. Cut out. Put in your book.

- Ice has almost none of this.
- As light as a _____.
- Big, fast-moving trucks possess a lot of this.
- Breaking these forces can cause big bangs.
- Named after the man who sat under the apple tree, so the story goes.
- Measured in kg.
- Prevents car engines seizing.
- The lubricant in your mouth.
- If there was no friction and you exhaled you would never _____.
- Two surfaces rubbing together produce this form of energy.
- Described as pushes/pulls.
- Where the force of gravity is 1/6 that of the Earth.
- If you have a problem to solve, you design and do a fair _____.

S	E	C	R	O	F	M	N	O
R	R	T	E	S	T	O	P	S
E	N	A	Y	D	I	M	N	S
H	O	C	E	T	R	E	E	A
T	O	H	C	L	W	N	T	L
A	M	I	Q	T	C	T	O	I
E	R	B	O	I	L	U	P	V
F	U	N	S	S	A	M	N	A

CHECK LIST

- What does this mean ☐
- Crazy Cartoon ☐
- Current ☐
- Fill in the Gaps ☐
- Word Find ☐
- Design/ Problem ☐
- Parent signature ☐

WHODUNNIT?

METAPHOR:

"LIFE is a box of chocolates, you never know what you're gonna get." This is Forest Gump's famous metaphor for life. Construct a metaphor for:
A fingerprint is ...

"OLOGIES"

"OLOGY" means "the study of." Find out what each of the following is a study of:

ENTOMOLOGY

ODONTOLOGY

TOXICOLOGY

PATHOLOGY

ANTHROPOLOGY

BIOLOGY

Fill in the gaps

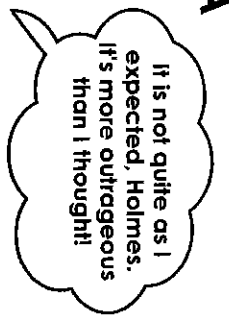
THE SCIENCE of _____ crimes is called _____ science. Sherlock _____ may have once used a hand-held _____ _____, forensic _____ now look at our _____ or can _____ faces using _____ imagery.

Draw a cartoon to match the words.

CHECK LIST

- Metaphor ☐
- Fill in Gaps ☐
- Crazy Cartoon ☐
- DNA ☐
- Brain Food ☐
- "Ologies" ☐
- Parent signature ☐

EUREKA



DEOXY RIBOSE/ NUCLEIC ACID

DRAW a picture to represent the structure of DNA. Why is DNA used in identifying criminals?

BRAIN FOOD

RELATIONSHIPS between unlikely things: what are the similarities between a footprint and a photograph?

Feedback

The folks here at ..... would appreciate some feedback about these homework activity sheets. If you could take a minute to fill in this sheet and fax it back to us, we would be forever grateful and may produce a better product as a result.

Kind regards.

LANGUAGE:

PLUSES	MINUSES	INTERESTING

RANGE OF ACTIVITIES:

PLUSES	MINUSES	INTERESTING

LAYOUT:

PLUSES	MINUSES	INTERESTING