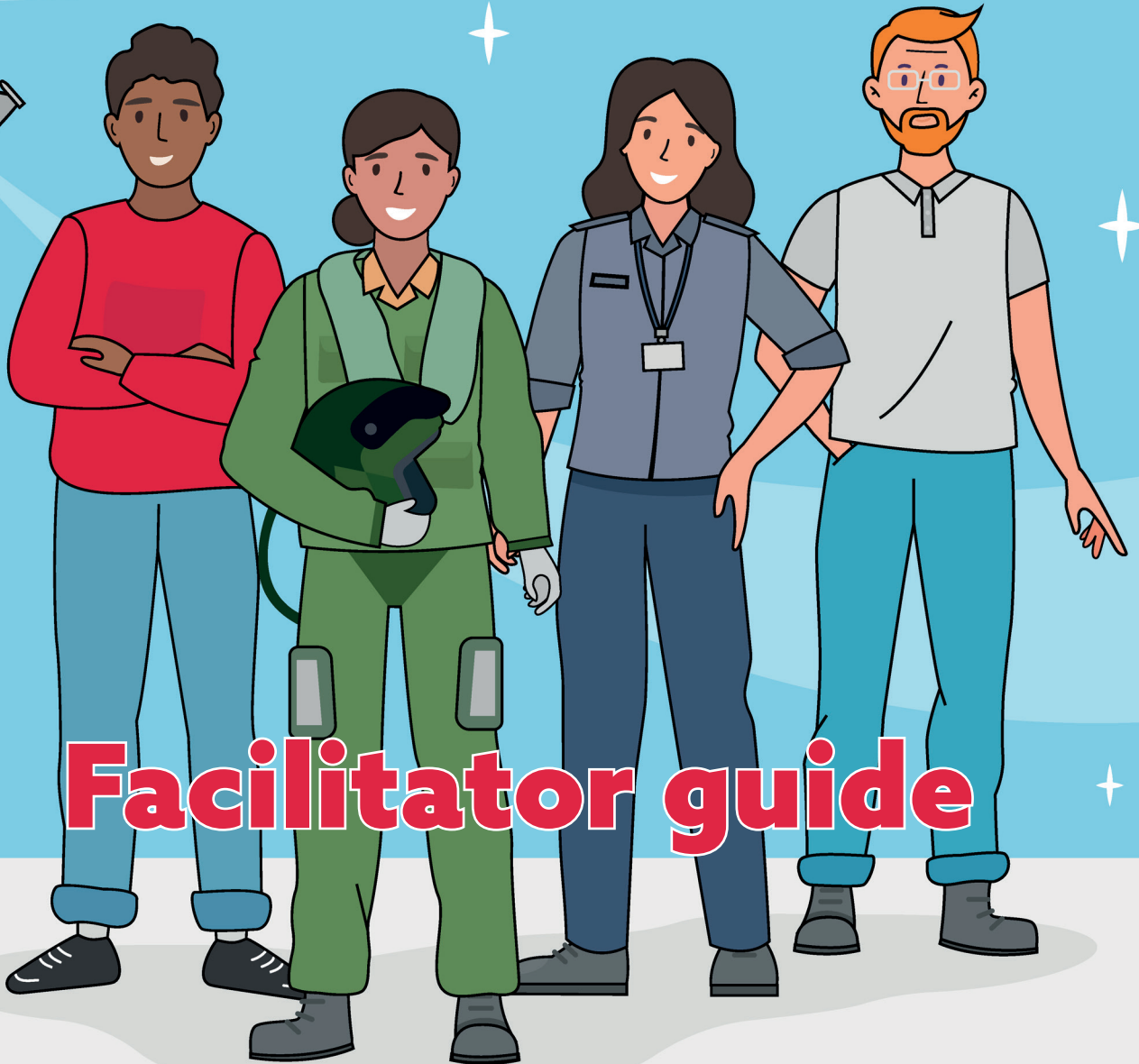


ROAD TO RIAT



# ACTIVITY BOOKLET



**Facilitator guide**



# ROCKET DESIGN

## LABELS:

Fuel Tank

Nose Cone

Body

Fins

Engine

## DEFINITIONS:

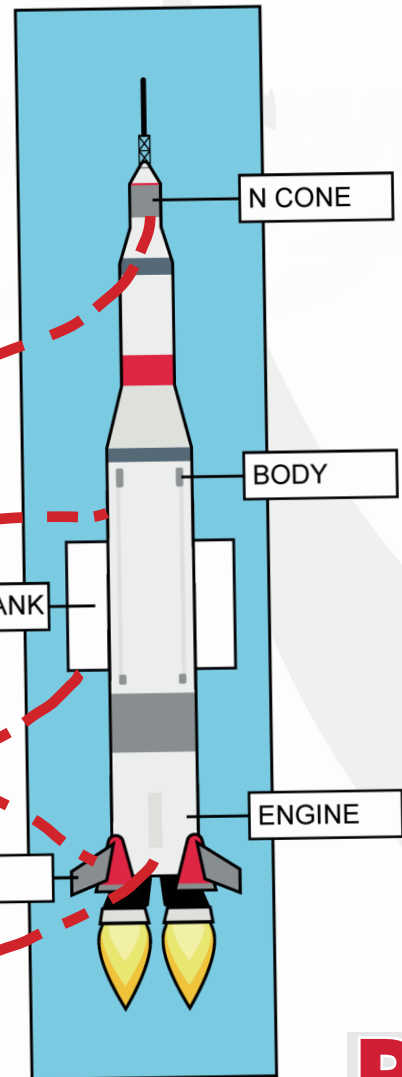
The top of the rocket is pointed to reduce the effect of drag through the air

The bottom part of the rocket that keeps it moving in the right direction

The outer casing of the rocket that is made of very strong but lightweight materials

The heart of the rocket that turns power into motion

A container within the rocket to hold chemicals and oxygen to provide power



**P8**

# JUMBLED GEOMETRY

How many triangles did you find?

20

How many squares did you find?

8

How many rectangles did you find?

2

**P9**

# ROCKET DESIGN



TOTAL = + + + + + + + = 56

**P13**

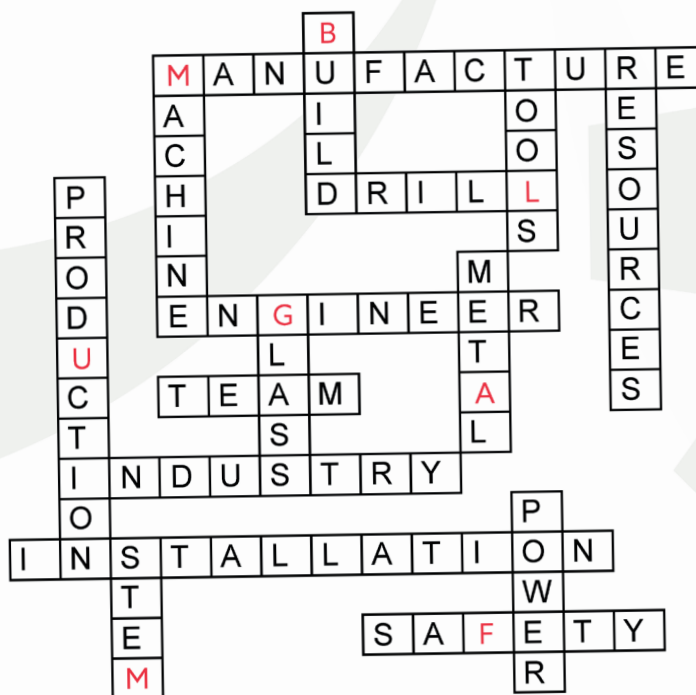
# MAXIMUM WEIGHT

Number of crates of cargo to remove:

16

**P14**

# KRISS KROSS



**P15**

## MANUFACTURING

TOOLKIT

D

SWITCH

G

ENGINE

I

ELECTRONICS

E

ENGINEER

C

ELECTRICITY

A

MACHINE

B

FACTORY

F

ASSEMBLE

H

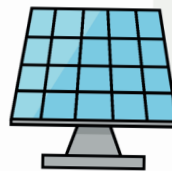
**P16**

## ENERGY COMBINATIONS

ELECTRICITY



SOLAR



BIOFUEL



**EXAMPLE 1**

	ELECTRICITY	SOLAR	BIOFUEL
1	ELECTRICITY	SOLAR	BIOFUEL
2	ELECTRICITY	BIOFUEL	SOLAR
3	BIOFUEL	SOLAR	ELECTRICITY
4	BIOFUEL	ELECTRICITY	SOLAR
5	SOLAR	ELECTRICITY	BIOFUEL
6	SOLAR	BIOFUEL	ELECTRICITY

**P17**

## COMPUTER VIRUS

$$\text{[Virus 1]} + \text{[Virus 2]} = 9$$

$$\text{[Virus 1]} + \text{[Virus 3]} = 8$$

$$\text{[Virus 1]} + \text{[Virus 1]} = 6$$

$$\text{[Virus 2]} + \text{[Virus 3]} = 11$$

$$\text{[Virus 1]} = \boxed{3}$$

$$\text{[Virus 3]} = \boxed{5}$$

**P21**

## SOFTWARE WORDSEARCH

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

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# CRACKING THE CODES

## CODE SYSTEM:

A	B	C	D	E	F	G	H	I	J
£	±	¥	≠	√	∠	∩	⊙	¤	↑
K	L	M	N	O	P	Q	R	S	T
Δ	≡	◊	!	&	#	†	*	@	}
U	V	W	X	Y	Z				
⊕	§	«	~	¶	©				

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## USE THE CODE TO FILL IN THE MISSING WORDS:

@	√	¥	⊕	*	¤	}	¶
S	E	C	U	R	I	T	Y

*	£	≠	¤	&	¥	&	◊	#	⊕	}	√	*
R	A	D	I	O	C	O	M	P	U	T	E	R

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## FILL IN THE GAPS

Being a Computer Systems Officer is a very **SPECIAL** job. Ellie has been working for the RAF for six **MONTHS** and is enjoying learning. The RAF have developed strong software programmes to keep everything working and to protect the information stored in the **COMPUTERS**.

It was her **RESPONSIBILITY** to make sure that the RAF's information was kept **SAFE**. Some RAF information is confidential, so she has a private password to access the computers. Only authorised people are permitted to use the computers.

She was proud that the RAF computer systems had the latest software technology needed to protect the computers from **RISK** of attack.

Ellie was very good at her **JOB**. She enjoyed working with the software and monitoring the activity. She always made sure that the computer was **LOGGED OFF** securely before she left her desk.

# THE PHONETIC ALPHABET

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<b>A</b> ALFA	<b>B</b> BRAVO	<b>C</b> CHARLIE	<b>D</b> DELTA	<b>E</b> ECHO	<b>F</b> FOXTROT	<b>G</b> GOLF	<b>H</b> HOTEL	<b>I</b> INDIA
<b>J</b> JULIETT	<b>K</b> KILO	<b>L</b> LIMA	<b>M</b> MIKE	<b>N</b> NOVEMBER	<b>O</b> OSCAR	<b>P</b> PAPA	<b>Q</b> QUEBEC	<b>R</b> ROMEO
<b>S</b> SIERRA	<b>T</b> TANGO	<b>U</b> UNIFORM	<b>V</b> VICTOR	<b>W</b> WHISKEY	<b>X</b> X-RAY	<b>Y</b> YANKEE	<b>Z</b> ZULU	

WING =

WHISKEY    INDIA    NOVEMBER    GOLF

NOSE =

NOVEMBER    OSCAR    SIERRA    ECHO

ROCKET =

ROMEO    OSCAR    CHARLIE    KILO    ECHO    TANGO

COCKPIT =

CHARLIE    OSCAR    CHARLIE    KILO    PAPA    INDIA    TANGO

## WORKING IN PAIRS

On Monday Dylan works with









On Tuesday Dylan works with

On Wednesday Dylan works with

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# AERODYNAMICS

 JET	 KITE
 HELICOPTER	 GLIDER
 AEROPLANE	 BIRD
 BALLOON	 ROCKET

**SLOWEST**

BALLOON

KITE

GLIDER

BIRD

HELECOPTER

AEROPLANE

JET

ROCKET

**FASTEST**

**P31**

# FASTEST RAF AIRCRAFT

$$50 \times 12 + 300 + 100 + 100 + 150 + 100 + 50 + 70 + 30 + 25 + 6 + 4 =$$

1535

Can you now work out how much faster than the F35B (below) this is?

307

**P32**

## GRID REFERENCE GAME

There is a group of people sitting on the hillside. What is the grid reference?

E2

There is a teacher and her pupils at the bottom of the mountain. What is the grid reference?

A1

There is a man sitting near some rocks. What is the grid reference?

B5

There is a lady with her dog standing near a stream. What is the grid reference?

D4

**P34**

## MEMORY HELPER

A good way to remember a list of things is to use a mnemonic. Dylan has made up this mnemonic to remember the order of the planets. You can see that the initial letter of each word in this sentence is the initial letter of the planets in order:

**Most Very Early Martians Just Spoke Utter Nonsense**

Can you use the initial letter of each planet to make up your own mnemonic?

**MERCURY**

MY

**VENUS**

VERY

**EARTH**

EASY

**MARS**

METHOD

**JUPITER**

JUST

**SATURN**

SHOWS

**URANUS**

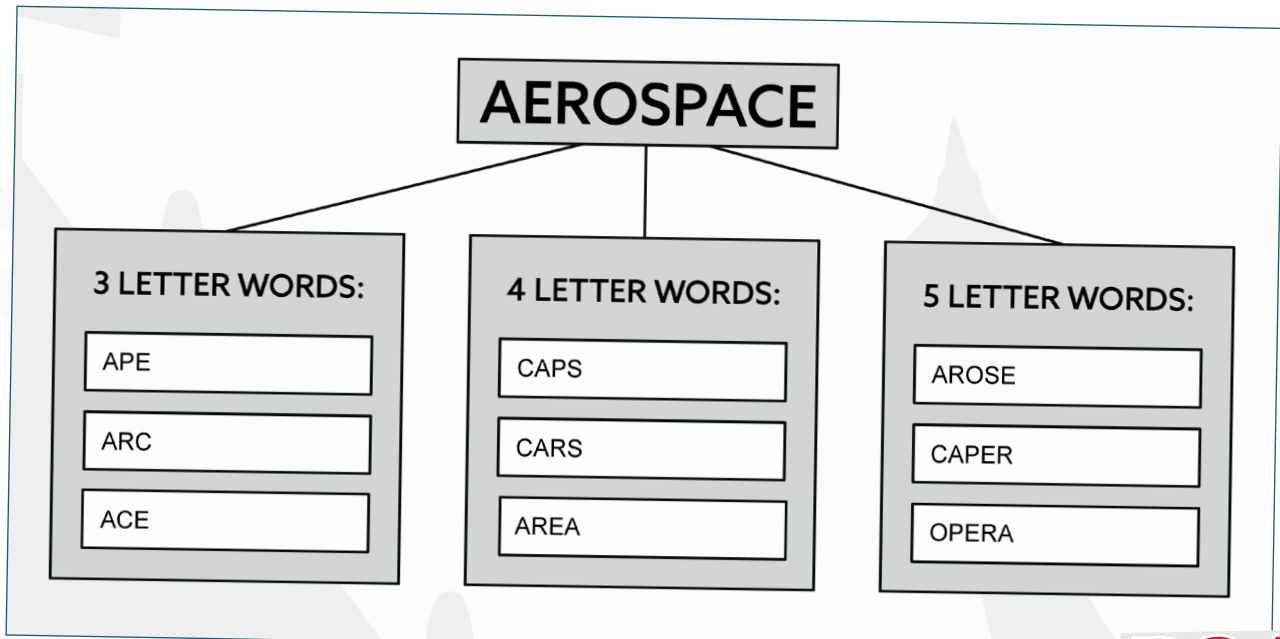
US

**NEPTUNE**

NINE

**P35**

## SMALLER WORDS



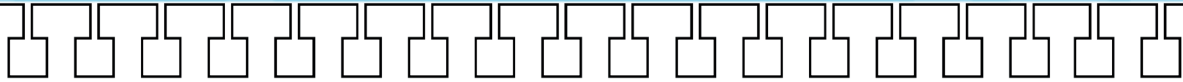
**P36**

## QUIZ

1. What does the term Mach 2 mean?
- a. Twice as fast as the speed of light
  - b. Twice as fast as the speed of sound
  - c. Twice as fast as the speed of air

2. What is meant by Aerospace?
- a. The area within Earth's atmosphere and beyond into outer space
  - b. A factory where aircraft are made
  - c. A space station in outer space

3. The RAF are on a mission to help tackle climate change and reduce what?
- a. The amount of time spent at their computers
  - b. Their carbon emissions
  - c. The number of trees planted



4. What does the word ALTITUDE mean?

- a. Height
- b. Weight
- c. Length

5. Which of these words is not in the phonetic alphabet?

- a. Bravo
- b. Oscar
- c. Jet

6. What is the most effective vehicle to travel from earth into space?

- a. Passenger aeroplane
- b. Helicopter
- c. Rocket

7. Which of these is an environmentally friendly power source?

- a. Coal
- b. Solar Energy
- c. Gas

8. What is a computer virus?

- a. A piece of code that can cause damage to the data on a computer
- b. A germ from a dirty keyboard that makes us poorly
- c. A computer programme that works like a calculator

9. Which of these is the definition of electronics?

- a. The energy used to power things
- b. Technology that uses circuits to make electricity flow
- c. Physical activity

10. Which planet is closest to the sun?

- a. Neptune
- b. Earth
- c. Mercury



# ROAD TO RIAT

