STUDENTS ON TRACK

SUPERCARS CHAMPIONSHIP Repco

PRIMARY ANSWER BOOK

INFORMATION FOR SCHOOLS AND TEACHERS

A visit to a round of the Supercars Championship provides fantastic opportunities for students to engage with and get excited about STEM education. In an environment where they can see, hear and smell STEM in action, children can make meaningful connections between the Australian Curriculum and the action on track. This booklet has been designed to be completed by students either independently or collaboratively and can be utilised both on the day or back in the classroom.

Alignment with the Australian Curriculum Year 5 - 6	
Curriculum Area: Science	
Chemical Sciences	Explain observable properties of solids, liquids and gases by modelling the motion and arrangement of particles (AC9S5U04)
Curriculum Area: Design and Technologies	
Generating and Designing	Generate, iterate and communicate design ideas, decisions and processes using technical terms and graphical representation techniques, including using digital tools (AC9TDE6P02)
Investigating and Defining	Investigate needs or opportunities for designing, and the materials, components, tools, equipment and processes needed to create designed solutions (AC9TDE6P01)
Curriculum Area: Mathematics	
Number	Interpret, compare and order numbers with more than 2 decimal places, including numbers greater than one, using place value understanding; represent these on a number line (AC9M5N01)
Measurement	Convert between common metric units of length, mass and capacity; choose and use decimal representations of metric measurements relevant to the context of a problem (AC9M6M01) Compare 12- and 24-hour time systems and solve practical problems involving the conversion between them (AC9M5M03) Estimate, construct and measure angles in degrees, using appropriate tools including a protractor, and relate these measures to angle names (AC9M5M04)
Space	Construct a grid coordinate system that uses coordinates to locate positions within a space; use coordinates and directional language to describe position and movement (AC9M5SP02)
Statistics	Interpret and compare data sets for ordinal and nominal categorical, discrete and continuous numerical variables using comparative displays or visualisations and digital tools; compare distributions in terms of mode, range and shape (AC9M6ST01)
General Capabilities • Literacy • Numeracy • Critical and Creative Thinking • Personal and Social Capability	**Cross Curriculum Priorities** • Sustainability

Source: Australian Curriculum Version 9, https://v9.australiancurriculum.edu.au/

ESCAPE THE SUPERCARS GARAGE CHALLENGE!

Scenario:

Oh no! You've been locked in a Supercars garage and need to escape. The door to get out is controlled by an eight-digit security keypad. To escape you must solve eight questions to reveal the secret security code and unlock the mechanism.

Rules:

- You can work on your own, with a buddy, or in a small group.
- Think carefully to answer each question.
- Write your answer down on the recording sheet.
- Once you have discovered the numbers for the keypad, check it with your teacher to see if you can escape the garage!

1 Study these examples of materials found in the Supercars Workshop.

The number of **liquids** is the first digit in the code.

2

Tyre

Motor Oil

Compressed Air

Race Fuel

Tools

Exhaust Fumes

2 Calculate the **range** of these lap times by working out the difference between the highest and lowest value number.

The digit in the **hundredths** place is the second digit in the code.

7

Lap 1	Lap 2	Lap 3	Lap 4	Lap 5
52.034	51.988	51.936	52.554	52.168

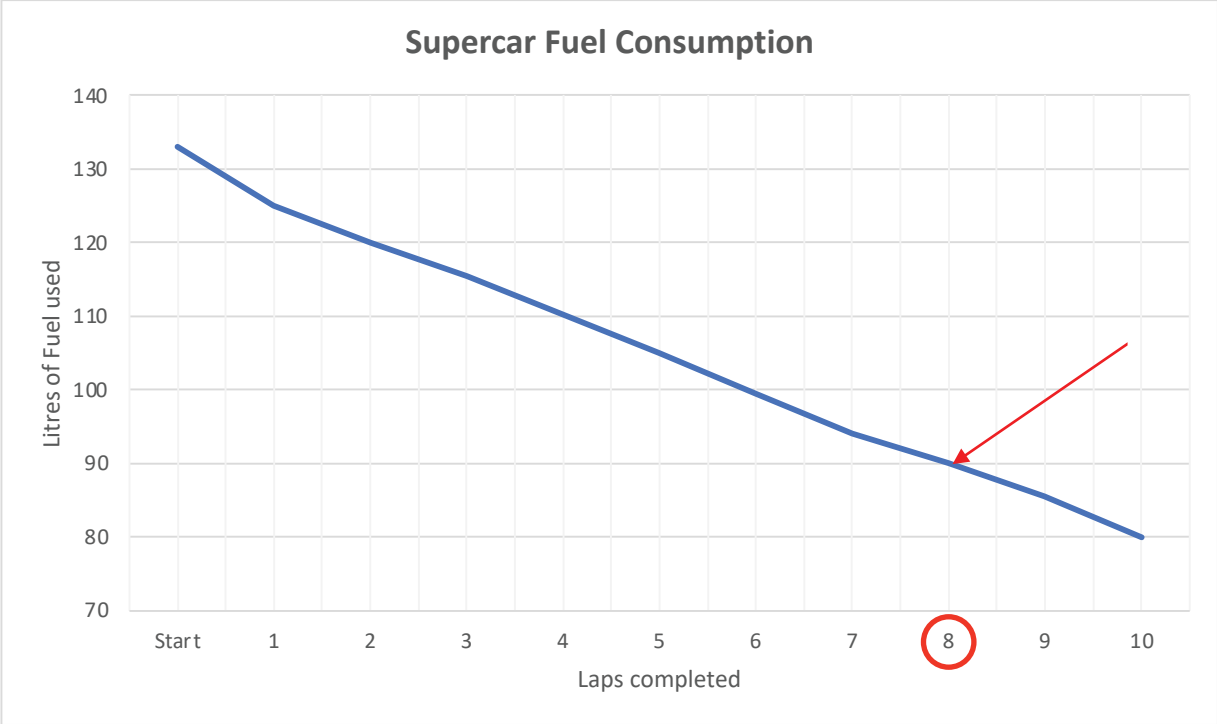
52.594 – 51.416

= 1.178

3 This chart shows the fuel consumption for one Supercars car over the first 10 laps of a race.

The number of laps completed after 43Litres of fuel has been used is the third digit in the code.

8



4 Write the meaning of each of these race flags.

Rearrange the highlighted letters to spell out the fourth digit in the code.

The highlighted letters are t, r, e, h, e = 3

C	A	U	T	I	O	N

R	A	C	E

F	I	N	I	S	H

P	E	N	A	L	T	Y

5 A race starts at 11:30AM and finishes at 2:21PM. Work out how long the race took and round to the nearest hour.

This is the fifth digit in the code.

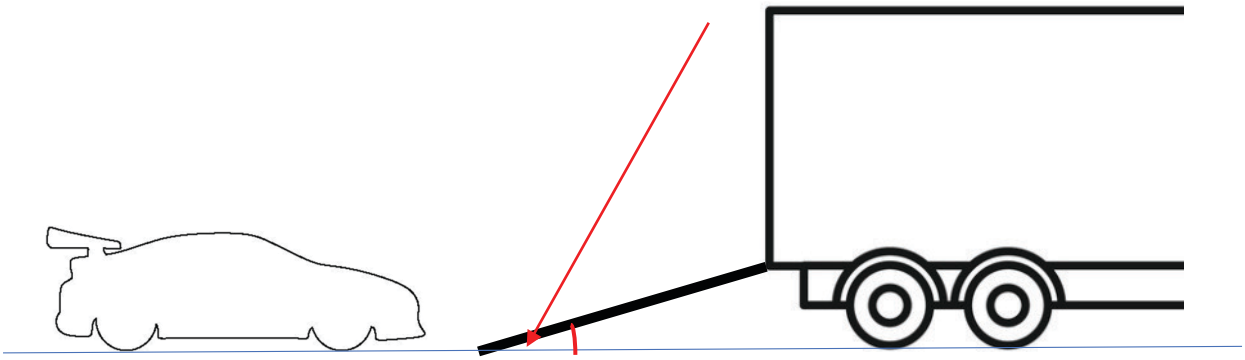
3

The race took 2hrs and 51 mins, rounded to 3 hours.

6 Study the diagram below.

The number of **Acute** angles is the sixth digit in the code.

1 (only one angle is acute – less than a right angle)



7 Study this list of design features found at most Supercars Race tracks.

Tick the features that improve safety, the number of features ticked is the seventh digit in the code.

4

Perimeter fence	
Safety Car	■
Sand trap	■
Supercars garage	
Helicopter landing pad	
Barriers	■
Food trucks	
Pit Lane speed limit	■

8 Convert the distances of these race tracks from metres(m) to kilometres(Km).

The number of tracks greater than 3kms in length is the eighth digit in the code.

Race Track	Distance (metres)	Distance (Kilometres)
Surfers Paradise	2960	2.96
Sydney Motorsport Park	3905	3.905
Symmons Plains Raceway	2400	2.4
Hidden Valley Raceway	2900	2.9
Newcastle	2641	2.641
Albert Park	5278	5.278

ESCAPE THE SUPERCARS GARAGE RECORDING SHEET

1st Digit	2nd Digit	3rd Digit	4th Digit
2	7	8	3

5th Digit	6th Digit	7th Digit	8th Digit
3	1	4	2

DESIGN YOUR OWN RACETRACK!

A Supercars track is usually around 3km in length. Use the grid to help you get the distance right; one square on the map is equal to 100 meters in real life. Make sure you include features such as pit lanes, start/finish line and grandstands.

	N	M	L	K	J	I	H	G	F	E	D	C	B	A
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
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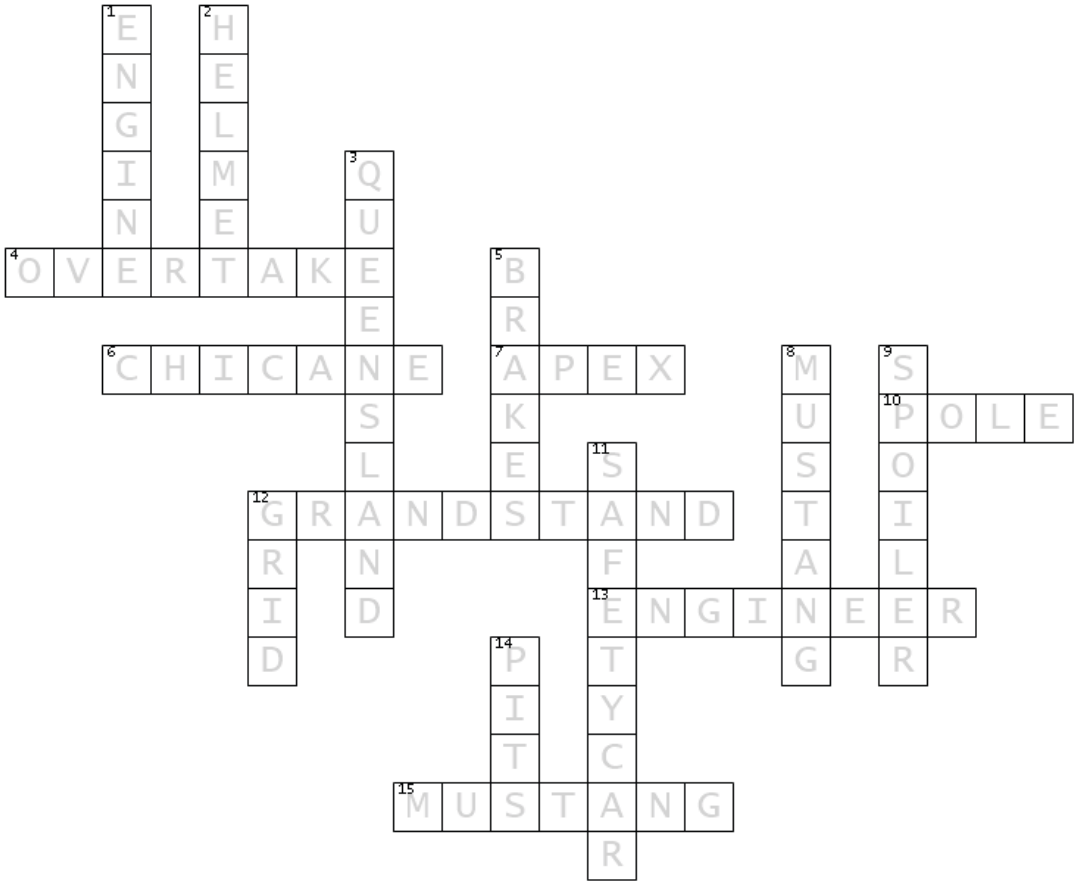
Write the grid references for at least 4 of your track features.
For example, B3 = grandstand.

SUPERCARS SPOT THE DIFFERENCE!

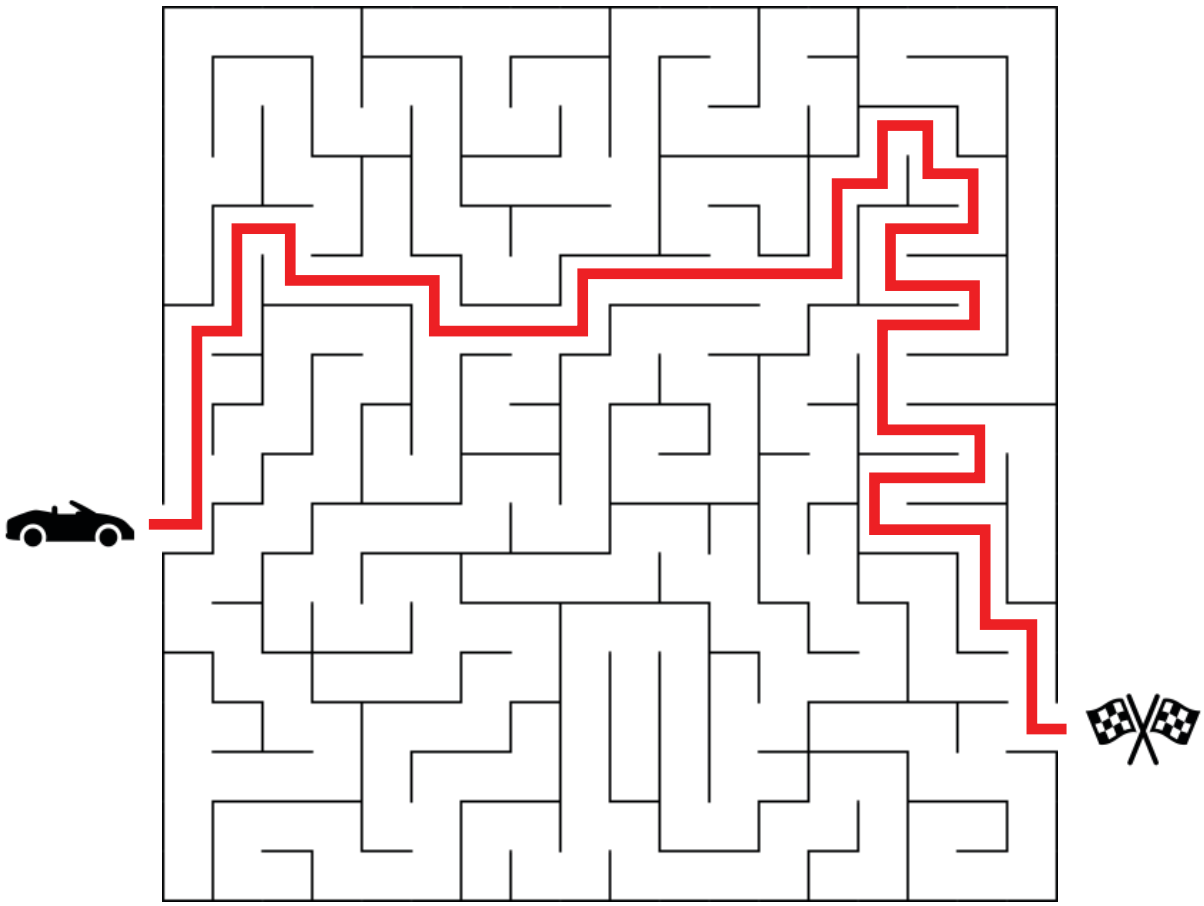
There are 10 differences to find between the two photos.

SUPERCARS CROSS WORD PUZZLE!



ACROSS	DOWN
4. Pass another car on the track	**1.** Powers a supercar
6. A sharp double bend in a racetrack	**2.** Protects driver's head in a collision
7. Point on a turn where Supercar is closest to the inside of the track	**3.** State where Townsville 500 is held in
10. Starting position at front of grid	**5.** Allow supercar to slow down
12. Place for spectators to sit and view the race	**8.** Strengthens Supercar, protects driver in a crash
13. Person skilled in working with vehicles and machinery	**9.** Found on back of Supercar, increases downforce
15. Ford model, free-roaming horse	**11.** Comes onto the track after an incident
	12. Where race cars form up at start of race
	14. Place to change tyres, refuel.

CAN YOU FIND YOUR WAY THROUGH THE MAZE TO THE FINISH LINE?



Fill in the missing letters to reveal the names of some top Supercars drivers

1 MATTHEW PAYNE

2 CAM WATERS

3 WILL BROWN

4 DAVID REYNOLDS

5 RICHIE STANAWAY

6 TIM SLADE

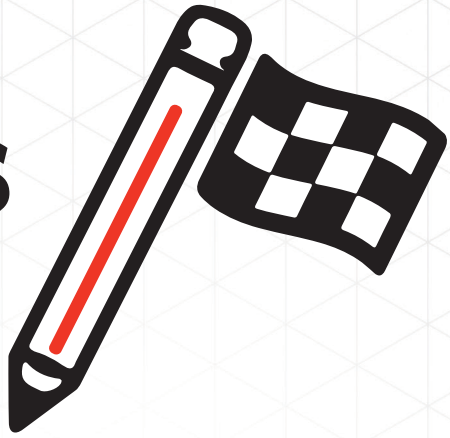
7 JAMES GOLDING

8 BROC FEENEY

9 CHAZ MOSTERT

10 JACK LE BROCQ

STUDENTS ON TRACK



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