

ANSWER GUIDE



Term 4, 2020

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Part 1: At home

PAGE 1






Activity title	Answers
Going back to ancient times	

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Activity title	Answers				
Innovation upon innovation	Students will have own responses.				
Pioneer thinking	Students will have own responses.				
In the kitchen and pantry Al foil 1907 Canned food 1809 Tupperware 1946	The 'Coolgardie safe' was a forerunner to the domestic fridge. <div> <p>Number the following food storage inventions in chronological order according to when they were invented.</p> <table> <tr> <td>3 Tupperware</td><td>4 Cling wrap</td></tr> <tr> <td>1 Canned food</td><td>2 Aluminium foil</td></tr> </table> </div>	3 Tupperware	4 Cling wrap	1 Canned food	2 Aluminium foil
3 Tupperware	4 Cling wrap				
1 Canned food	2 Aluminium foil				
The best thing since sliced bread	Students will have own responses.				

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Activity title	Answers
Ring ring (Innovate)	Students will have own responses.

Ring ring (Explore)	<div> <div>1672 B A first two-way videophone is created, which allows people see, hear and reply to each other in real time – but with no commercial success</div> <div>1838 D B Robert Hooke finds that sound can be sent over a wire or string</div> <div>1876 C C Alexander Graham Bell finds a way to transmit speech electronically, inventing the first telephone</div> <div>1930 A D Samuel B. Morse discovers that messages can be communicated by pressing and releasing a button, transmitting a pattern of sounds</div> <div>1947 E E transistors are invented, which allow computers to be merged with electronics, marking the beginning of smartphone development</div> <div>1962 I F Martin Cooper makes the first ever mobile phone call – but the phone takes a year to recharge</div> <div>1973 F G iTunes Store and the Android market open up for smartphones, driving up popularity of phone apps</div> <div>1993 H H first smart phones are released, which have a touch screen and can send and receive faxes</div> <div>2008 G I satellites start to be used for telecommunications</div> </div>
Tiny device, billions of possibilities	<div> <div>Which of the following household items are likely to contain a transistor?</div> <div>Explore</div> <div> <div>  <div>TV</div> <div>✓</div> </div> <div>  <div>Lawnmower</div> <div></div> </div> <div>  <div>PlayStation</div> <div>✓</div> </div> <div>  <div>Laptop</div> <div>✓</div> </div> <div>  <div>Security alarm</div> <div>✓</div> </div> </div> </div>

High five WiFi	Students will have own responses. Examples:	
	Discovery 1	Discovery 2
	Vacuum cleaner	How to create suction
TV	Transistor	How to fabricate a flexible hose
		Recording equipment

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Home comforts	<p>Surprisingly, pillows were not always soft! Which of the following statements are true?</p> <p><input type="checkbox"/> Ancient Chinese believed that hard pillows, made out of materials such as porcelain or jade, brought energy, health and intelligence.</p> <p><input type="checkbox"/> King Henry VIII of England banned the use of soft pillows with the exception of use by pregnant women.</p> <p><input type="checkbox"/> Ancient Egyptians placed wooden or stone pillows under the heads of the dead, and engraved them with images of the gods to keep bad spirits away.</p> <p><input checked="" type="checkbox"/> All of the above.</p>
Making life easier	Students will have own responses.
Less work, more leisure	<p>A demonstration of the 'Brown Box' led to the licensing of the technology and a release of the first official video game console. What was the brand of this first console?</p> <p><input type="checkbox"/> Atari <input checked="" type="checkbox"/> Magnavox <input type="checkbox"/> XBox</p> <p><input type="checkbox"/> Nintendo <input type="checkbox"/> PlayStation</p>

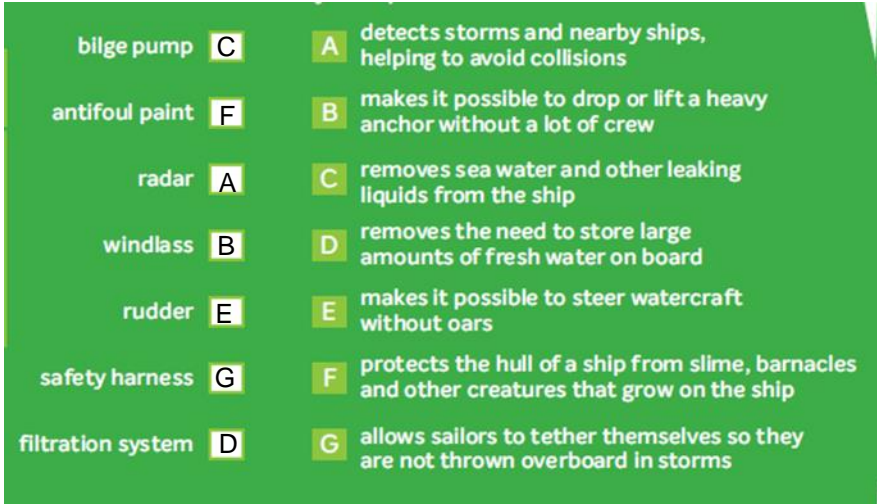
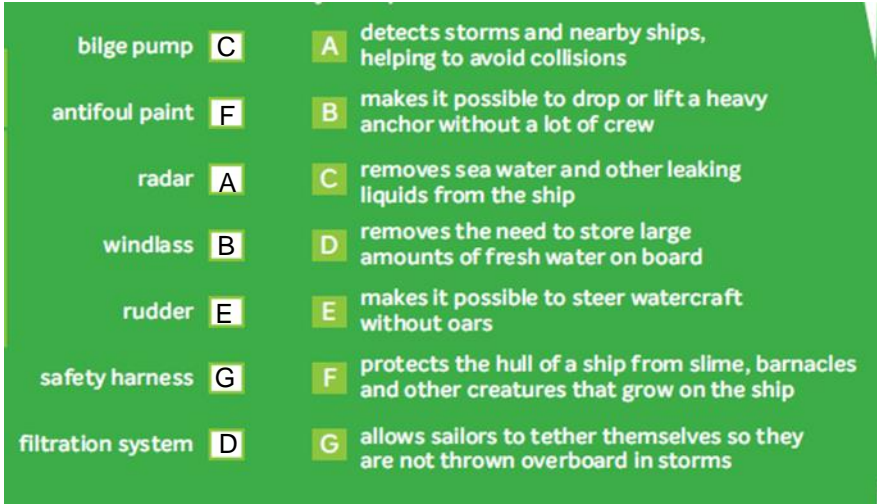
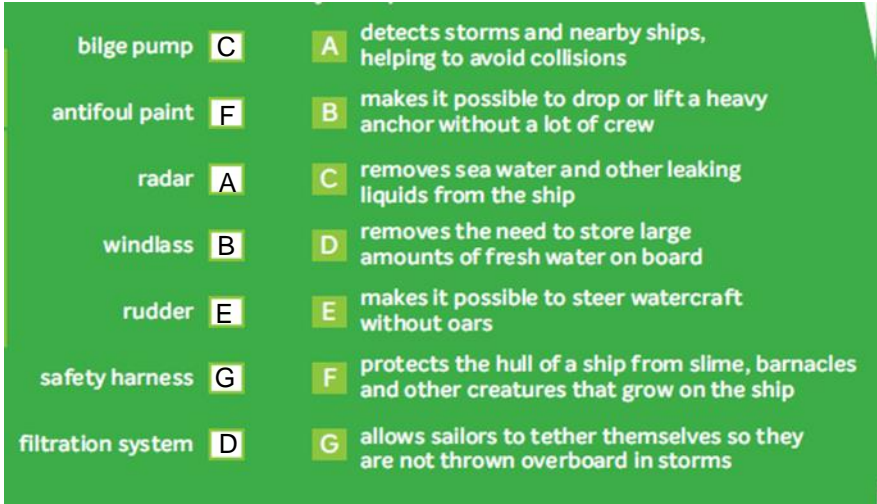
Part 2: Getting from A to B

PAGE 1

Activity title	Answers
How long has it been around?	<p>*The dating of 'world map' refers to the complete map of the world, which shows all land masses, including Australia and Antarctica.</p>

PAGE 2


Activity title	Answers
Rolling and chuffing (Explore)	<p>Where was the steam locomotive invented?</p> <div> <input checked="" type="checkbox"/> England <input type="checkbox"/> Germany </div> <div> <input type="checkbox"/> USA <input type="checkbox"/> Russia </div> <p>After the invention of the steam locomotive, which innovation came next?</p> <div> <div>diesel powered trains</div> <div>electric powered trains</div> </div>
Rolling and chuffing (Investigate)	431 km/h

New ideas for mass transport	Students will have own responses. Some examples include:		
		advantages	disadvantages
	introducing light rail (a tramlike system built over or alongside existing roads)	useful for where level of demand is less than would warrant heavy rail	might limit space for existing road traffic
	sinking existing train lines so they all run through underground tunnels	removes unsightly train lines	tunnel construction work might damage buildings in the surrounding area
Crossing the seas	introducing a monorail (a railway in which a single rail track is elevated above existing roads)	require very little ground space	difficult to engineer switch tracks for different routes
Crossing the seas			
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Crossing the seas			

PAGE 3

Activity title	Answers
G'day car	Students will have own responses.

Improving and modifying	<table><thead><tr><th></th><th>safety</th><th>comfort/ convenience</th><th>performance</th><th>sustainability</th></tr></thead><tbody><tr><td>inflatable tyres (1888)</td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>indicators (1908)</td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>electronic ignition starter (1911)</td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>coil spring suspension (1934)</td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>enclosed fenders (1946)</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>power steering (1951)</td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>catalytic converter (1973)</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td>air bags (1988)</td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>electric vehicles (1996)</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td>cruise control (1999)</td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>reversing camera (2002)</td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>advanced turbocharging (2008)</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr></tbody></table>		safety	comfort/ convenience	performance	sustainability	inflatable tyres (1888)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	indicators (1908)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	electronic ignition starter (1911)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	coil spring suspension (1934)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	enclosed fenders (1946)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	power steering (1951)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	catalytic converter (1973)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	air bags (1988)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	electric vehicles (1996)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	cruise control (1999)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	reversing camera (2002)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	advanced turbocharging (2008)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Driverless cars	Students will have own responses.																																																																	
On ya bike!	<p>The first 'geared' bikes required riders to stop, remove the wheel from the frame and flip the wheel to change the gear.</p> <div><div>True</div><div>False</div></div>																																																																	
Fun in the park	<div><ul style="list-style-type: none">• Some scooters have electric motors so riders use less energy.• Modern bikes are made of strong, lightweight materials like carbon fibre and aluminium.• Roller blades became easier to get on and off when laces were replaced with buckles.• As video became easier to create and share, more people became interested in learning skateboard tricks.• Hoverboards use rechargeable batteries, making them an economic transport option.</div>																																																																	




Into the sky	<p>Which silhouette shows the Wright brothers' first aeroplane?</p> 
Drones	<p>You must not fly your drone higher than <input type="text" value="120"/> m above ground level.</p> <p>You must keep your drone at least <input type="text" value="30"/> m away from other people.</p> <p>You must only fly <input type="text" value="1"/> drone at a time.</p> <p>You must fly at least <input type="text" value="5.5"/> km away from an airport.</p> <p>Fines of up to \$ <input type="text" value="1050"/> can be issued if you are caught breaking these rules.</p>
Innovation saving lives	<p>Which of these other helpful aviation inventions were developed in Australia?</p> <p><input type="checkbox"/> parachute</p> <p><input checked="" type="checkbox"/> black box flight recorder</p> <p><input type="checkbox"/> fire bomber aircraft</p> <p><input checked="" type="checkbox"/> inflatable aircraft escape slide</p> <p>✓ ✗</p>
To space and beyond	<p>CAMERA PHONES</p> <p>EAR THERMOMETERS</p> <p>BABY FORMULA</p> <p>WIRELESS HEADSETS</p> <p>ATHLETIC SHOES</p> <p>COMPUTER MOUSE</p> <p>FREEZE DRIED FOOD</p> <p>HOME INSULATION</p>

Part 3: Staying healthy

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Activity title	Answers
Aussie innovation	<p>Only one of the technologies listed below did not originate in Australia. Tick which one.</p> <div> <input type="checkbox"/> electronic pace maker <input type="checkbox"/> cochlear implant </div> <div> <input type="checkbox"/> plastic disposable syringe <input type="checkbox"/> spray on skin </div> <div> <input type="checkbox"/> ultrasound scanner <input type="checkbox"/> long wearing contact lenses </div> <div> <input checked="" type="checkbox"/> x-ray <input type="checkbox"/> cervical cancer vaccine </div>

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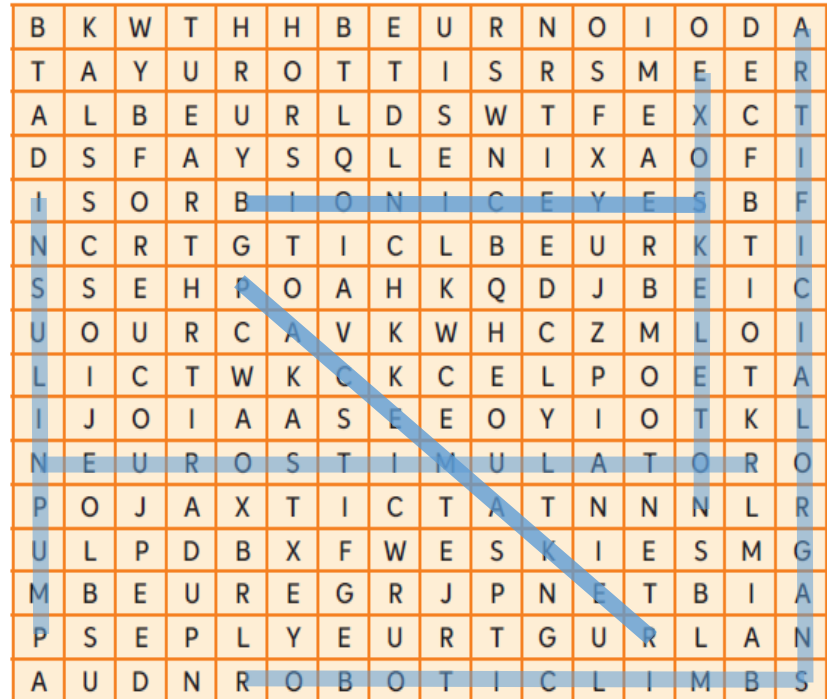
Activity title	Answers
Wash, wash, wash your hands	<p>At the time of Semmelweis' discovery, it was believed that disease was spread by 'miasma', or bad smells in the air. How did the following people contribute to promoting the importance of handwashing?</p> <div>  <p>Florence Nightingale</p> <p>Proved that microorganisms such as bacteria cause disease.</p> </div> <div>  <p>Louis Pasteur</p> <p>Insisted on cleanliness in military hospitals during their nursing career and kept extensive data to demonstrate the positive effects of good hygiene.</p> </div> <div>  <p>Joseph Lister</p> <p>Demonstrated that sterilising instruments, hands and dressings dramatically lowered post-surgery mortality rates.</p> </div>
Diagnostic tools	<p>The invention of the microscope in 1590, and improvements to it over time, eventually allowed people to see germs. Today, the microscope remains an important diagnostic tool.</p> <p>In which century were these other medical aids all invented: hypodermic syringe, disposable gloves and stethoscope?</p> <div> 1600s 1700s 1800s 1900s </div>
From scabs to jabs	<p>Which of the following illnesses can be prevented with vaccinations?</p> <div> <input checked="" type="checkbox"/> measles <input checked="" type="checkbox"/> chickenpox </div> <div> <input type="checkbox"/> diabetes <input checked="" type="checkbox"/> flu </div> <div> <input checked="" type="checkbox"/> polio <input type="checkbox"/> dementia </div>

<p>Is prevention better than a cure?</p>	<p>Mandatory food labelling allows people to monitor their fat and sugar intake, making it easier to avoid chronic diseases like diabetes and HEART disease.</p> <p>Development and promotion of SUNSCREEN reduces the number of people who get skin cancer.</p> <p>In a pandemic, blockchain (secure, rapid data sharing) technology helps to identify disease outbreaks and provides governments with recommendations for how to contain a VIRUS.</p> <p>Mandatory addition of folic ACID to bread products reduces the number of children born with brain defects.</p> <p>Genetic testing can predict some forms of breast, bowel or ovarian CANCER which can be prevented through subsequent surgery.</p>
<p>First aid</p>	<div> <p>The world's first CPR training mannequin was made by a Norwegian toy maker and called 'Resusci Anne'.</p> <div> <div>True</div> <div>False</div> </div> </div>
<p>Getting rid of ouch</p>	<div> <div> <div>A Caffeine, used to treat migraines</div> <div>C Menthol, used to treat sore throats</div> <div>B Digoxin, used to treat heart problems</div> <div>D Aspirin, used to treat pain, inflammation and fever</div> </div> <div> <div>D Willow</div> <div>B Foxglove</div> <div>A Coffee</div> <div>C Mint</div> </div> </div>

Activity title	Answers
Towards ethical research	<p>Modern doctors and pharmacists must adhere to a professional code of ethics (set of rules, or values) in order to be registered to practice or to undertake medical research. These rules are complex, but revolve around several important principles. Match each principle to what it means.</p> <p>beneficence C A The basic human rights of each person must be respected.</p> <p>non-maleficence F B Patients have the right to determine their own healthcare.</p> <p>autonomy B C Doctors must do things that are good for their patients.</p> <p>justice D D Benefits and costs of medical care and medicines should be distributed across society.</p> <p>dignity A E Doctors must be honest and tell their patients the truth.</p> <p>truthfulness E F Doctors must not try to hurt their patients.</p>

Loud and clear	Students will have their own responses.															
'Wheely' useful	<div><div><div>Evaluate</div><div><div><p>racing wheelchair</p></div><div><p>sports wheelchair</p></div><div><p>beach wheelchair</p></div></div><div><div>lightweight</div><div>turns easily</div><div>wide tyres</div><div>streamlined</div><div>comfortable</div><div><table><tr><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table></div></div></div></div>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Bionic bodies



Old fashioned treatments

Match the treatments to their uses.



these creatures eat dead flesh but leave healthy parts alone, so can be used to keep infection away and speed up healing

healthy bacteria is taken from a donor sample and transplanted into a patient's gastrointestinal tract, to improve their gut microbiome

used to stimulate blood flow, these creatures' saliva contains an anticoagulant which stops blood clotting