

Technical English

1A

Workbook



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1 Basics

1 Use the words in the box to complete the dialogues.

what's where what I'm is are I'm

- 1 A: Hi, _____ Kaito.
 B: Hello, my name _____ Pedro.
 A: Nice to meet you.
- 2 A: Hello. _____ are you from?
 B: I'm from Japan. _____ is your name, please?
 A: I'm Hans. Pleased to meet you.
- 3 A: Good to meet you, Svetlana. _____ you from Poland?
 B: No, _____ from Russia. _____ your name?
 A: I'm Danielle.

2 Use the words in the pool to complete the orders.

- 1 Stand _____.
 2 Write _____.
 3 Turn _____.
 4 Close _____.
 5 Sit _____.
 6 Raise _____.
 7 Come _____.


right
 down your name
 your book in
 up
 your hand

3 Write the words in the correct columns.

adapter antenna bolts cable chisel nuts plug saw screwdriver
 screws spanner washers

Tools	Electricals	Fixings
_____	<i>adapter</i>	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

2 Letters and numbers

- 1  02 Listen and correct the five mistakes on the business card.



- 2  03 Listen and complete the form.

Surname:	J _____
First name:	_____
Company:	_____
Email address:	_____

- 3 Match items 1–10 with the right words. Then match items 11–20.

- | | |
|--------|---------------------------|
| 1 gal | a) amp |
| 2 € | b) angle/degree |
| 3 kg | c) Celsius |
| 4 A | d) euro |
| 5 in | e) foot |
| 6 ft | f) gallon <i>l</i> |
| 7 km | g) gram |
| 8 ° | h) inch |
| 9 g | i) kilogram |
| 10 C | j) kilometre |
| 11 + | k) kilometres per hour |
| 12 m | l) kilowatt |
| 13 kW | m) litre |
| 14 V | n) metre |
| 15 kph | o) negative |
| 16 rpm | p) positive <i>ll</i> |
| 17 W | q) pound |
| 18 L | r) revolutions per minute |
| 19 £ | s) volt |
| 20 - | t) watt |

4  04 Mr Martin is buying a car. Listen and write down the facts about the car.

- 1 Kilometres: 120 000 km
- 2 Engine temperature: _____ ° Celsius
- 3 Petrol tank: _____ litres
- 4 Engine speed: up to _____ rpm
- 5 Top speed: _____ kph
- 6 Price: _____ euros

3 Dates and times

1 Write the words for these ordinal numbers.

- | | | | |
|------|---------------|------|-------|
| 4th | <i>fourth</i> | 5th | _____ |
| 12th | _____ | 29th | _____ |
| 23rd | _____ | 8th | _____ |
| 7th | _____ | 31st | _____ |
| 30th | _____ | 6th | _____ |
| 22nd | _____ | 20th | _____ |

2 Complete the puzzles.

- 1 Jan 31 Fri → Feb 8

January the thirty-first is a Friday, so February the eighth is a Saturday.

- 2 Mar 29 Wed → Apr 2
- _____

- 3 May 29 Tue → June 3
- _____

- 4 July 30 Thur → Aug 4
- _____

- 5 Sept 28 Mon → Oct 7
- _____

- 6 Nov 27 Thur → Dec 6
- _____

3 Use the words in the box to complete the dialogue.

that's is it's then what when's it's

A: _____ the meeting?

B: _____ on Monday.

A: _____ that Monday 12th?

B: Yes. _____ right.

A: Do you know _____ time?

B: _____ at 10 o'clock.

A: OK. See you _____. Bye.

B: Bye.

4 Word list

NOUNS	NOUNS	ORDINAL NUMBERS	VERBS
adapter	amp	first	listen
antenna	angle	second	lower
bolt	Celsius	third	pick up
cable	degree	fourth	put down
chisel	euro	fifth	raise
nut	foot	sixth	read
plug	gallon	seventh	say
saw	gram	eighth	sit
screw	inch	ninth	stand
screwdriver	kilogram	tenth	start
spanner	kilometre	eleventh	stop
washer	kilometres per hour	twelfth	write
counter	kilowatt	thirteenth	ADVERBS
flight	litre	twentieth	closed
model	metre	thirtieth	down
platform	pound	PHRASES	in
first name	revolutions per minute	Excuse me	left
surname	volt	Hello	off
initial(s)	watt	Good to meet you	on
	ADJECTIVES	Nice to meet you	open
	negative	Pleased to meet you	out
	positive		right
			up

1 Make up answers to these questions. Use words from column 2 of the Word list.

- How heavy is it? *425 grams* *22 kilograms*
- How hot is it? _____
- How long is it? _____
- How far is it to Dubai? _____
- How fast is the car travelling? _____
- How fast is the engine turning? _____
- How much petrol is in the tank? _____
- What's the price of the car? _____
- How do you write 225 V in words?

1 Naming

1 Write sentences for the pictures.

Parts	Vehicles
axle deck nose number plate tail wheel	boat motorbike mountain bike plane racing car rocket



That's the wheel of a racing car.



2 Use the words in the box to correct the sentences.

bolts nails nuts screw screwdriver spanner staple washers

1 *That isn't a hammer. That's a screwdriver.*



2 *Those aren't screws. Those are nails.*



3 *This _____ a chisel. This _____.*



4 _____ washers. These _____.



5 _____ a nail. This _____.



6 _____ nuts. These _____.



7 _____ a staple. That's _____.



8 _____ nuts. Those _____.



2 Assembling

1 How do you change a car wheel? You need:



a **jack**, to raise and lower the car

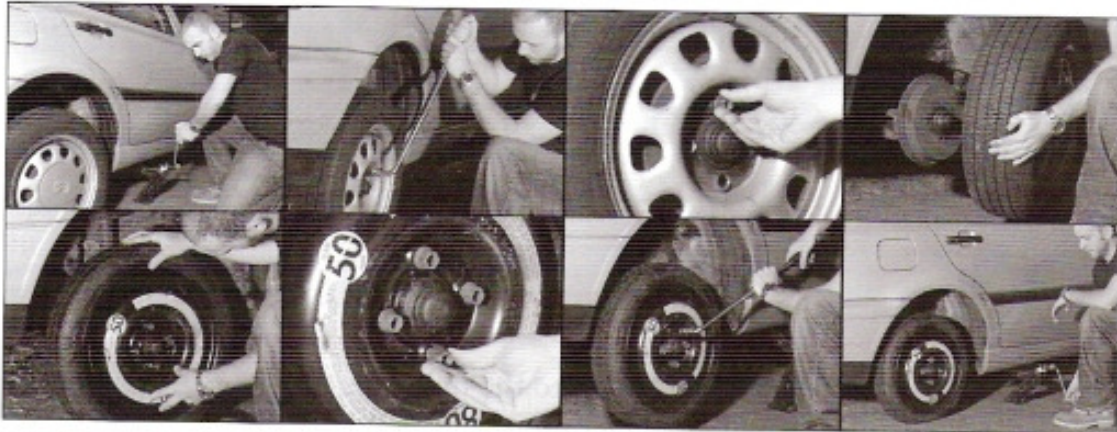


a **box spanner**, for the nuts



a **spare wheel**

Complete the instructions for the pictures, using the verbs from the box.



loosen lower put on raise take off tighten

- 1 _____ the car with the jack.
- 2 _____ all the nuts with the box spanner.
- 3 _____ all the nuts.
- 4 _____ the wheel _____ the axle.
- 5 _____ the spare wheel _____ the axle.
- 6 _____ all the nuts.
- 7 _____ all the nuts with the box spanner.
- 8 _____ the car.

2 Write the dialogue lines in the right order.

30 mil. How many nails do you need? Shopkeeper: _____

30 mil, please.

Customer: _____

Hello.

Shopkeeper: _____


I need 80, please.

Customer: _____


Some nails. What size do you need? Shopkeeper: _____

Hello. I need some nails, please. Customer: _____

3 Ordering


- 1  05 Listen to the two phone messages. Correct the mistakes in the names and numbers.

1 Name: Vladislav Sczetin	Phone number: 00 48 920 4516
2 Name: Abdel Mohamed Mabruk	Phone number: 00 20 537 1490

- 2  06 Listen to the two phone messages. Complete the message forms.

1
 Date: _____
 Time: _____
 Caller: _____
 Phone number: _____

2
 Date: _____
 Time: _____
 Caller: _____
 Phone number: _____

- 3  07 Listen to the dialogue. A customer is ordering skateboard parts on the phone. Complete the order form.



SKATEBOARDERS							
ORDER							
Surname: _____							
Address: _____							
Postcode: _____							
Tel: _____							
Item (circle)	Colour (circle)			Size (circle)			Quantity (write)
Helmet	red	yellow	blue	large	medium	small	_____
Deck	red	yellow	blue	large	medium	small	_____
Pad	red	yellow	blue	large	medium	small	_____

4 Word list

NOUNS	NOUNS	VERBS	ADJECTIVES
axle	bolt	assemble	large
deck	hammer	loosen	medium
helmet	lever	pull	small
nose	nail	push	red
pad	nut	put	yellow
plate	screw	take	blue
tail	screwdriver	tighten	
truck	spanner	use	
wheel	staple		
	washer		

- 1 Spelling: there are eight words in the Word list with double letters. Write them here.

wheel, _____

- 2 Vocabulary groups: write the words in column 2 on the correct line.

Tools: *hammer*, _____

Things: *bolt*, _____

- 3 Complete the instructions for skateboarding with words from the box.

loosen push put take tighten

Before skateboarding

- _____ on the helmet.
_____ it down onto your head.
_____ the helmet strap.
_____ on the pads.
_____ the pads.

After skateboarding

- _____ the pads and _____ them off.
_____ the helmet strap and _____ off the helmet.









Section 1

1 Complete the dialogues.

I'm he's that's is do I'm are

- 1 A: _____ you Maria?
B: No, _____ Sonia. _____ Maria.
- 2 A: What _____ you do, Toni?
B: _____ a builder.
- 3 A: _____ Carlos a builder?
B: No, _____ an electrician.

2 Check the information in Students' Book page 9. Write the dates in column 2.

A person writes ...	What is the date?
 1 Claire Paris, 1/2/11	February 1st 2011
 2 Vicky Chicago, 3/9/11	_____
 3 Yuki Tokyo, 11/01/22	_____
 4 Matt Seattle, 11/12/11	_____
 5 Director, ISO Geneva, 2011.07.08	_____
 6 Peter Berlin, 9/10/11	_____

3 Work out the sequence of days and dates. Write the missing ones.

- 1 Monday, May the first
- 2 Thursday, May the fourth
- 3 Sunday, May the seventh
- 4 _____
- 5 Saturday, May the _____
- 6 _____
- 7 Friday, May the _____
- 8 _____

Section 2

1 Jumbled letters. Write the plural words.

- | | | | | | |
|---|---------|---------------|---|-------------|---------------|
| 1 | lotsb | <i>bolts</i> | 5 | ilsan | <i>n_____</i> |
| 2 | hessraw | <i>w_____</i> | 6 | lesax | <i>a_____</i> |
| 3 | wressc | <i>s_____</i> | 7 | eatsksarbod | <i>s_____</i> |
| 4 | tuns | <i>n_____</i> | | | |

2 Write two more dialogues, like the example. Use the words from the box.

A: What's this tool called?

B: It's a *spanner*.

A: Is it for *nails*?

B: No. It's for *nuts*.

hammer screws nuts spanner screwdriver nails

A: What's this tool called?

B: It's _____

A: Is _____

B: _____

A: _____

B: _____

A: _____

B: _____

3 Complete the dialogue with the questions.

What's your phone number?

What's your email address?

What's your name?

What size cards do you need?

How many do you need?

What's your address and postal code?

When do you want them?

A: Hello. I need to order some business cards.

B: *How many* _____

A: 200, please.

B: _____

A: 85 millimetres by 55 millimetres.

B: _____

A: Stevens, with a V. Initials HC.

B: _____

A: 14 Hayfield Road, Bristol. BR7 4JK

B: _____

A: 0117 893462.

B: _____

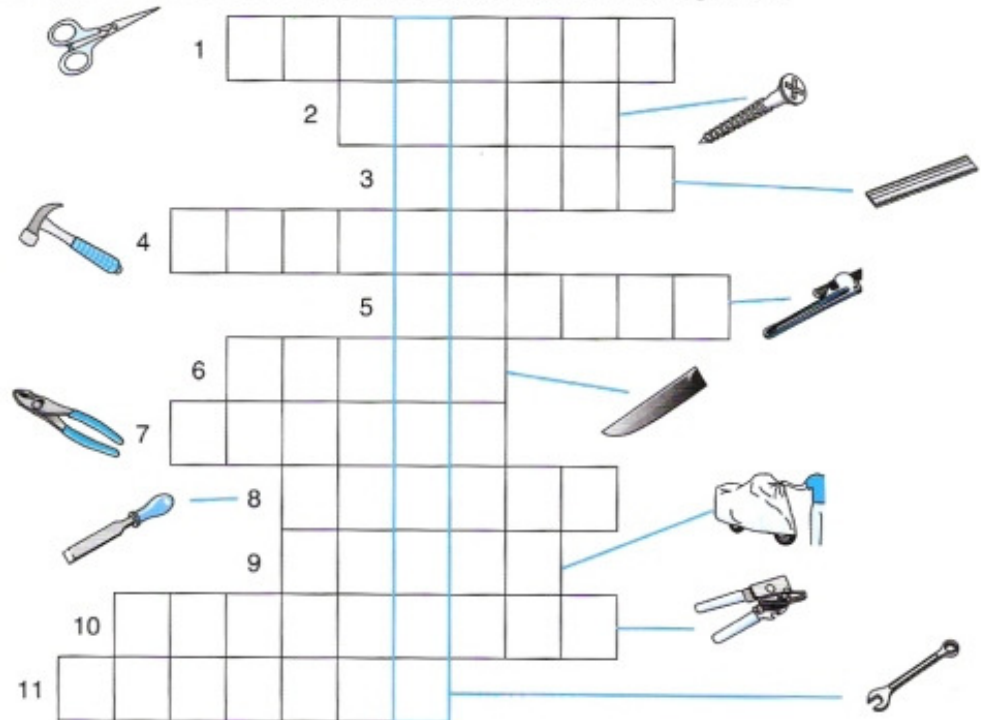
A: It's harry.stevens@ojs.com

B: _____

A: Friday, please.

1 Tools

1 Complete the crossword. Find a twelfth word in the puzzle.



2 Write the answers to the puzzles. Use each item once.

hammer pair of pliers pair of scissors saw screwdriver spanner

- 1 It has a handle, a shaft and a head. It turns screws. It is a *screwdriver*.
- 2 It has a shaft and a head. It drives in nails. It is a _____.
- 3 It has two handles and two blades. It cuts paper. It is a _____.
- 4 It has a shaft and jaws, but no blades. It tightens nuts. It is a _____.
- 5 It has two handles, jaws and blades. It cuts wire. It is a _____.
- 6 It has a handle and a blade. It cuts wood. It is a _____.

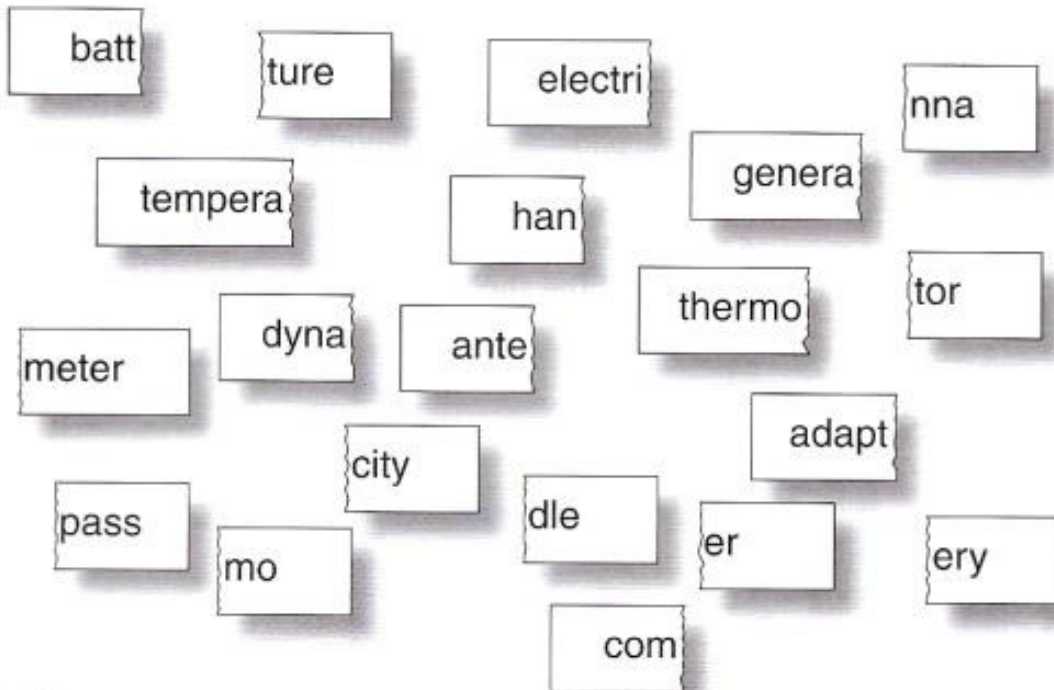
3 Use the words in the box to complete the dialogues.

do does don't doesn't have has

- | | |
|--|---|
| <p>1 A: _____ Carlos need a spanner?
B: No, he _____.
A: _____ he need a pair of pliers?
B: Yes, he _____.
A: Does he _____ a saw?
B: Yes, he _____ two.</p> | <p>2 A: _____ you have a hammer?
B: No, I _____.
A: _____ you need a hammer?
B: Yes, I _____.
A: I don't _____ one. Go and ask Pedro. He _____ one in his tool box.</p> |
|--|---|

2 Functions

1 Match the word halves and write the words next to the explanations.



- 1 This makes electricity. *generator*
- 2 This shows North. _____
- 3 This stores electricity. _____
- 4 An AC _____ changes AC to DC.
- 5 This receives radio signals. _____
- 6 A solar panel changes sunlight into _____.
- 7 You can measure _____ in Fahrenheit or Celsius.
- 8 You turn this round with your hand. _____
- 9 This measures temperature. _____
- 10 This turns and makes electricity. _____

2 Use the verbs from the box to complete the text.

charge shine charges turn listen turns produces

Are you going on holiday? This 3-in-1 torch, radio and battery charger is for you.

When you (1) _____ the handle, it (2) _____ the dynamo. This (3) _____ the battery. You can then (4) _____ the torch, or (5) _____ to the radio.

For example, five minutes at 120 rpm (6) _____ enough power to listen to the radio for twenty minutes. You can also turn the handle to (7) _____ your mobile phone.

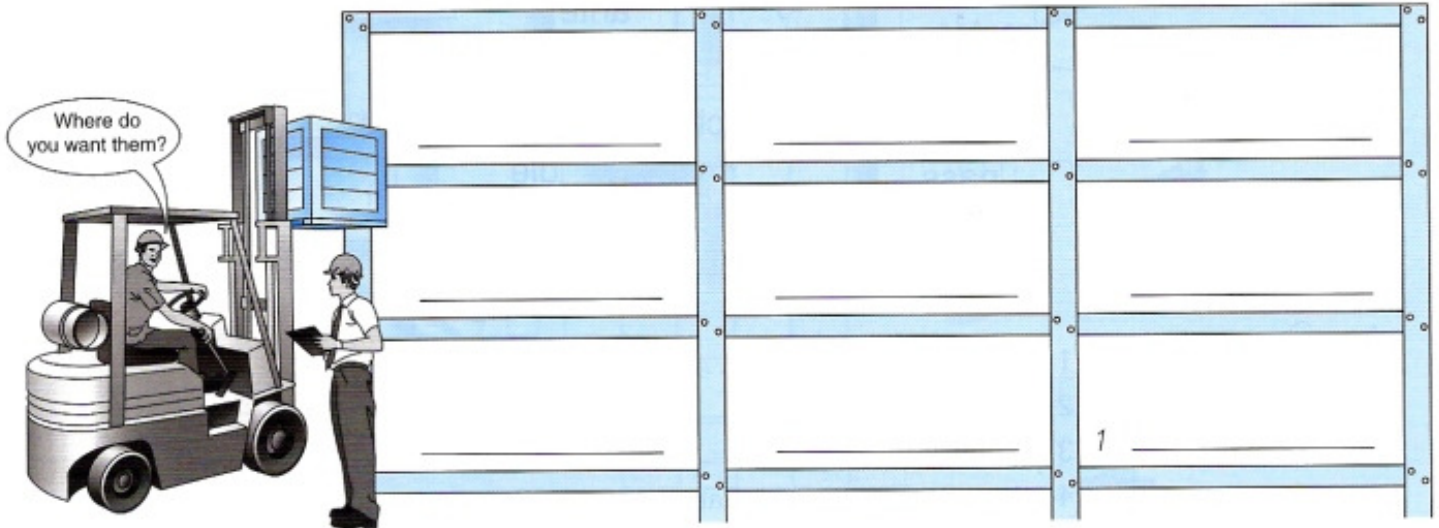


3 Locations

1 08 Listen to the dialogue in the factory. Where does the driver put the boxes?

- | | | |
|--------------|--------------|---------------|
| 1 speakers | 2 keyboards | 3 DVD players |
| 4 scanners | 5 headphones | 6 amplifiers |
| 7 mouse pads | 8 adapters | 9 printers |

- 1 Listen and write the product number on the right shelf.
- 2 Write all the product names on the right shelves.
- 3 Look at the shelves. What order are the products in?



2 09 Listen to a dialogue on a boat. Where do the people put the things? Write the number of the location (1-12) next to the word on the right.

1	2	3
4	5	6
7	8	9
10	11	12

- multi-tool
- pliers
- radio
- wrench
- batteries
- torch
- scissors 12

4 Word list

NOUNS (tools)	NOUNS (electricity)	VERBS	ADJECTIVES
blade	alarm	change	external
boat	battery	charge	internal
bottle opener	clock	connect	plastic
building site	dynamo	cut	PHRASES
can opener	electricity supply	drive in	at the bottom
compass	generator	grip	at the top
cover	mains electricity	measure	in the centre
handle	radio	produce	in the middle
head	solar panel	receive	on the left
jaws	solar power	shine	on the right
key tool	torch	turn	above
metal	NOUNS (computer)		below
multi-tool	computer		to the left of
pick	computer station		to the right of
pliers	cursor		
ruler	DVD drive		
scissors	keyboard		
shaft	mouse		
string	printer		
survival tool	scanner		
thermometer	screen		
wire	speaker		
wrench			

1 Match each noun in column 1 with a phrase in column 2.

- | | |
|----------------|------------------------|
| 1 Chisels | a) loosen screws. |
| 2 Hammers | b) tighten nuts. |
| 3 Pliers | c) cut wood. |
| 4 Rulers | d) drive in nails. |
| 5 Saws | e) cut metal. |
| 6 Scissors | f) grip wire. |
| 7 Screwdrivers | g) measure everything. |
| 8 Wrenches | h) cut paper. |

1 Directions

1 Look at the pictures of the jump jet.

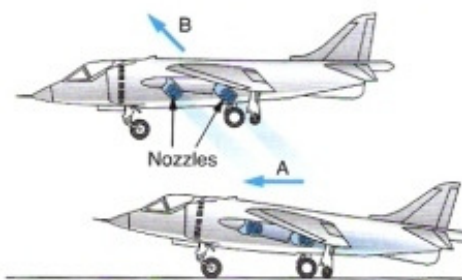
1 Which picture shows a vertical take-off? (Picture _____)

2 Which picture shows a short take-off? (Picture _____)

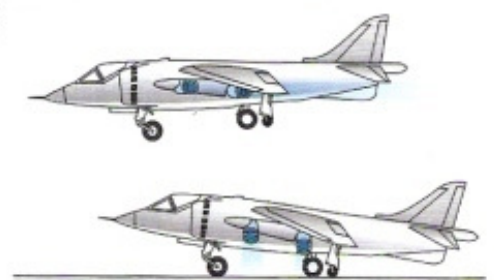
3 Which directions can you see? Write the letters from the pictures (A–D) here.

vertically up _____ horizontal _____ diagonally up _____

1



2



2 Which directions can the jump jet fly? Complete the text with words from the box.

forwards sideways straight down straight up to the right up and down

The jump jet can fly like a helicopter or fly like a passenger plane. The jump jet has one engine and four nozzles. The four nozzles can point straight down. Then the jet engine lifts the plane (1) _____ into the air. In the air, the four nozzles can rotate and point backwards. This pushes the plane (2) _____. Then the plane can fly at about 1165 kph. Like a passenger plane, it can turn to the left or turn (3) _____. It can fly diagonally (4) _____. It can also fly backwards and (5) _____, a little. How does it land? It stops in the air and flies (6) _____.


3 Read about the movements of the human leg. Complete the text with words from the box.

angles ankle degrees directions hip knee move pivots rotate sideways




The leg has three (1) *pivots*, the hip, the knee and the ankle. The ankle can move in three (2) _____. At the (3) _____, the foot can move up and down about 50 (4) _____. It can (5) _____ from side to side about 50 degrees, and it can (6) _____ about 15 degrees. The (7) _____ can move in the same directions, but with different (8) _____. The (9) _____ can only move in one direction. At the knee, the lower leg can only move up and down. It cannot move (10) _____ or rotate.


2 Instructions

1  10 Write the full forms. Then listen and check.

- 1 30 kph *thirty kilometres per hour*
- 2 500 rpm _____
- 3 15 m/s _____
- 4 65 mph _____
- 5 8 km/s _____

2  11 Listen and write the speeds. Use the short forms from question 1.

- 1 Sound travels at _____.
- 2 The engine of a Formula 1 car turns at about _____.
- 3 The moon truck Apollo 16 Rover travels at _____.
- 4 A solar-powered car can travel at _____.
- 5 A person on skis can go downhill at _____.
- 6 A person on a snowboard can go downhill at _____.
- 7 The maximum speed of a train in France is _____.
- 8 The fastest sailing ship sails at _____.
- 9 A Blackbird jet flies at _____.

3  12 Listen to the dialogue. Are all the parts for the radio-controlled truck in the box? Listen and tick the things on the list.

Instruction manual

Transmitter

Truck

Antenna for transmitter

Antenna for truck

2 9V batteries



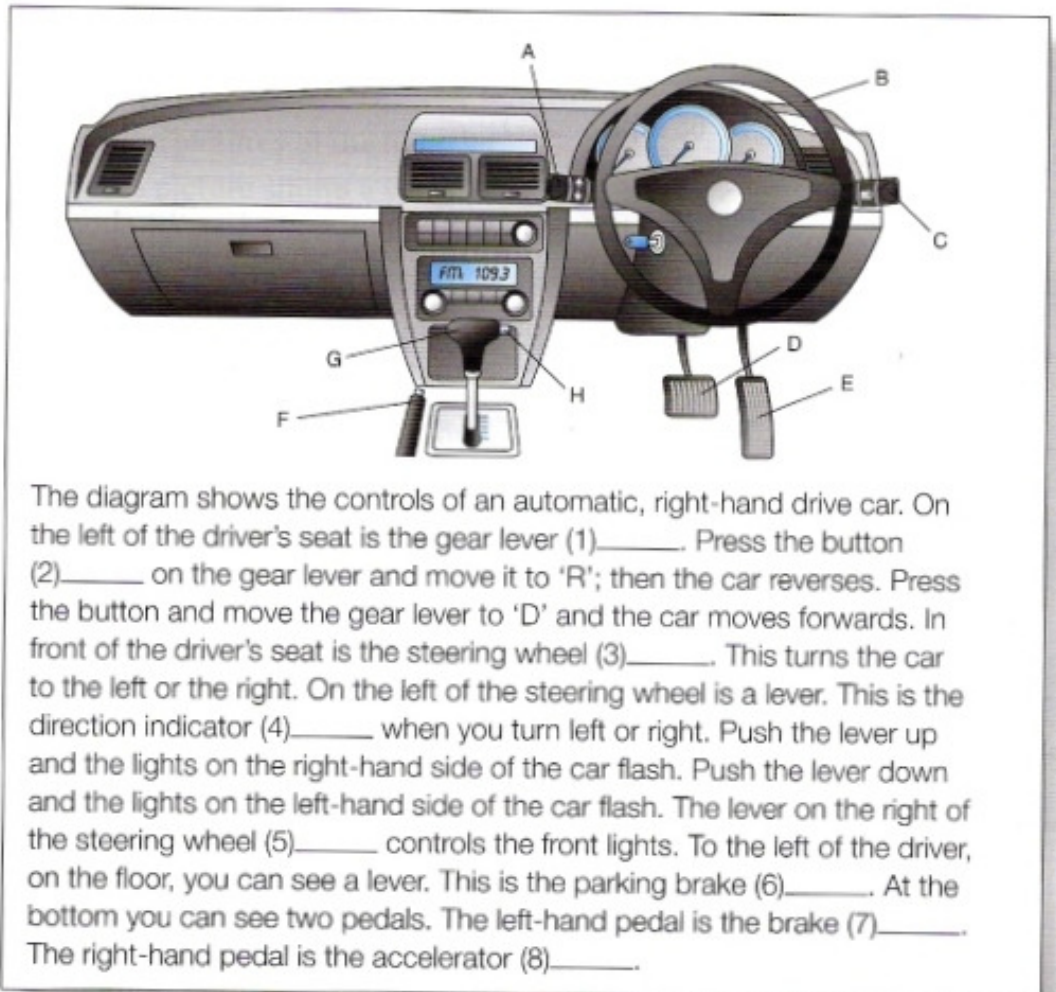
4 Use the words from the box to complete the text about the truck.

control moves press receives sends turns use

The transmitter (1) _____ radio signals to the receiver in the truck. An antenna on the truck (2) _____ signals from the transmitter. The truck and the transmitter (3) _____ electricity from batteries. Six buttons (4) _____ the speed and direction: forwards, backwards, forward and left, forward and right, backwards and left, backwards and right. There are two electric motors. One motor (5) _____ the wheels to the left or right. The other motor drives the back wheels forwards or backwards. (6) _____ the control button 'Forwards'. The motor turns the shaft and the shaft turns the axle. The truck (7) _____ forward.

3 Actions

- 1 Read the instruction manual. Write the letters (A–H) from the diagram next to the names of the controls.



The diagram shows the controls of an automatic, right-hand drive car. On the left of the driver's seat is the gear lever (1)____. Press the button (2)____ on the gear lever and move it to 'R'; then the car reverses. Press the button and move the gear lever to 'D' and the car moves forwards. In front of the driver's seat is the steering wheel (3)____. This turns the car to the left or the right. On the left of the steering wheel is a lever. This is the direction indicator (4)____ when you turn left or right. Push the lever up and the lights on the right-hand side of the car flash. Push the lever down and the lights on the left-hand side of the car flash. The lever on the right of the steering wheel (5)____ controls the front lights. To the left of the driver, on the floor, you can see a lever. This is the parking brake (6)____. At the bottom you can see two pedals. The left-hand pedal is the brake (7)____. The right-hand pedal is the accelerator (8)____.

- 2 Write instructions for driving a car. Write full sentences from these notes. Use *when* and *you*, and add *the* and punctuation.

1 pull gear lever to 'R' → car reverses

When you pull the gear lever to 'R', the car reverses.

2 pull gear lever to 'D' → car moves forwards

3 press accelerator → car goes faster

4 press brake pedal a little → car goes slower

5 turn steering wheel to the right → car turns right

6 turn steering wheel to the left → car turns left

7 press brake pedal → car stops

- 3 Put the instructions for parking a car in the correct order. Complete the instructions with the following words: *forwards*, *left*, *right*.

Order: _____

A Drive _____ a little and turn the steering wheel to the _____.

B Reverse a little more and turn the steering wheel to the _____.
Stop.

C Drive _____ slowly. Stop.

D Reverse and turn the steering wheel to the _____.



4 Word list

NOUNS (tools)	NOUNS (electricity)	VERBS	ADJECTIVES
accelerator	parking brake	accelerate	backwards
angle	pedal	ascend	down
antenna	pivot	control	forwards
brake	plane	descend	sideways
direction	revolution	dock	up
elbow	robot	park	to the left
forearm	roll	press	to the right
handle	shoulder	pull	PHRASES
helicopter	slider	push	horizontal axis
joystick	speed	reverse	vertical axis
kilometre	steering wheel	rotate	
lever	switch	slide	
metre	tilt	slow down	
mile	wrist	turn round	

1 Find nine nouns for driving a car. Write them here.

accelerator _____

2 Find opposites in columns 3 and 4 for the following words and write them here.

accelerate _____

ascend _____

pull _____

forwards _____

up _____

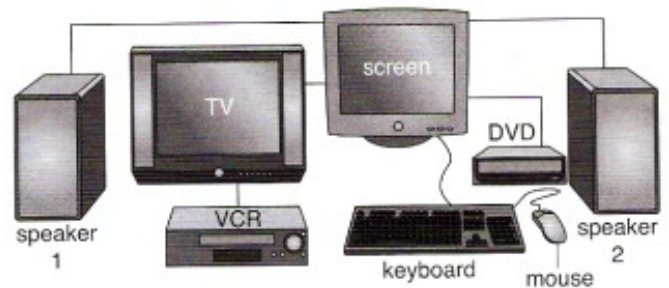
to the left _____

3 Find seven verbs for flying a helicopter. Write them here.

Helicopters can accelerate. _____

Section 1

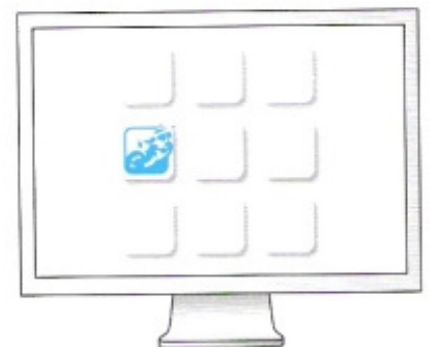
- 1 Look at the diagram of the work station. Tick the true statements. Correct the false ones.



- 1 The screen is in the centre. ✓
 - 2 The keyboard is in the centre, ~~above~~ the screen. *below*
 - 3 The TV is to the right of the screen.
 - 4 The VCR is on the left, below the TV.
 - 5 Speaker 1 is on the right.
 - 6 Speaker 2 is on the left.
 - 7 The mouse is at the top, to the left of the keyboard.
 - 8 The DVD drive is below the mouse, to the left of the screen.
- 2 Where are the programmes on the screen? Make sentences with the words in the box.

bikes cars football the news boats science skateboards space planes

- 1 *Football is at the top, on the left.*
- 2 *Planes are at the top, in the centre.*
- 3 _____
- 4 *Bikes are on the middle line, _____*
- 5 _____
- 6 _____
- 7 _____
- 8 _____
- 9 _____



- 3 Write the singular form of the words in the box. If a word has no singular form, write 'a pair of ...'.

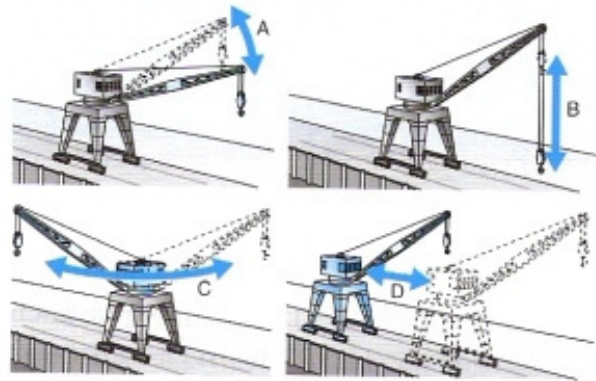
batteries hammers overalls pincers pliers scissors spanners wrenches

- 1 Singular form: *battery* _____
- 2 No singular form: *a pair of overalls* _____

Section 2

- 1 Find letters in the diagram (A-D) for each sentence. Use the phrases from the box to complete the sentences.

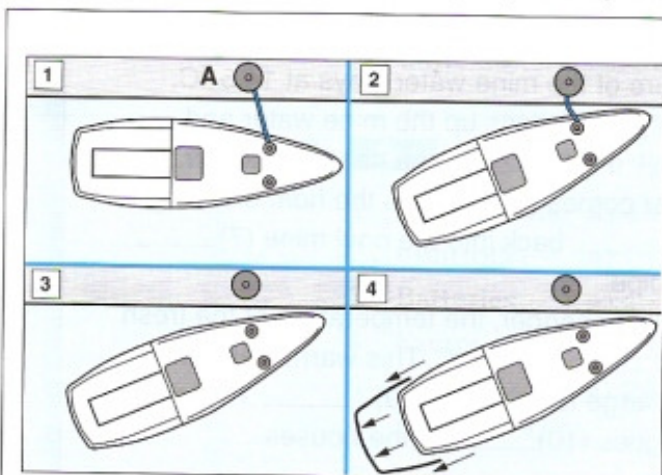
descend up and down
forwards and backwards
rotate diagonal or horizontal



- () The crane can move _____ on its wheels.
 - () The top part of the crane can _____ through 360°.
 - () The arm of the crane can ascend and _____ through 90°. It can be in a vertical, _____ position.
 - () The hook below the end of the arm can go _____.
- 2 Use the words in the box to complete these questions and answers. Then match the questions with their answers.

is are do does can can't put need press goes receives

- _____ you find the user manual? a) No, there _____ only one.
 - How _____ the truck work? b) You _____ it in the transmitter.
 - Where _____ I put the battery? c) No, I _____ find it.
 - Where _____ the antenna go? d) Yes, we _____ it for the truck.
 - How _____ I steer the truck? e) It _____ on top of the truck.
 - _____ there two batteries in the box? f) It _____ signals from the transmitter.
 - _____ we need a second battery? g) You _____ one of the control buttons.
- 3 Read the instructions (A-D) for steering a boat backwards. Put them in the correct order. Then complete the instructions with the following words: *forwards, left, centre, backwards*.



- 1 _____ 2 _____ 3 _____ 4 _____
- A Turn the steering wheel to the _____ position. Pull the lever _____; this puts the engine into reverse. Reverse slowly.
- B Turn the steering wheel to the left. Push the engine lever forwards; this moves the boat slowly _____ and to the _____.
- C Pull the engine lever to the _____ position. Loosen the rope. Take off the rope from Point A.
- D Start the engine. Tie the rope on the _____ of the boat to Point A.

1 Heating system

1 Draw a line from each word to its opposite.

sink above bottom out of cold cool enter outlet push

hot inlet leave heat pull rise top below into

2 Rewrite the sentences. Change the words in *italics>*. Use words with opposite meanings from question 1.

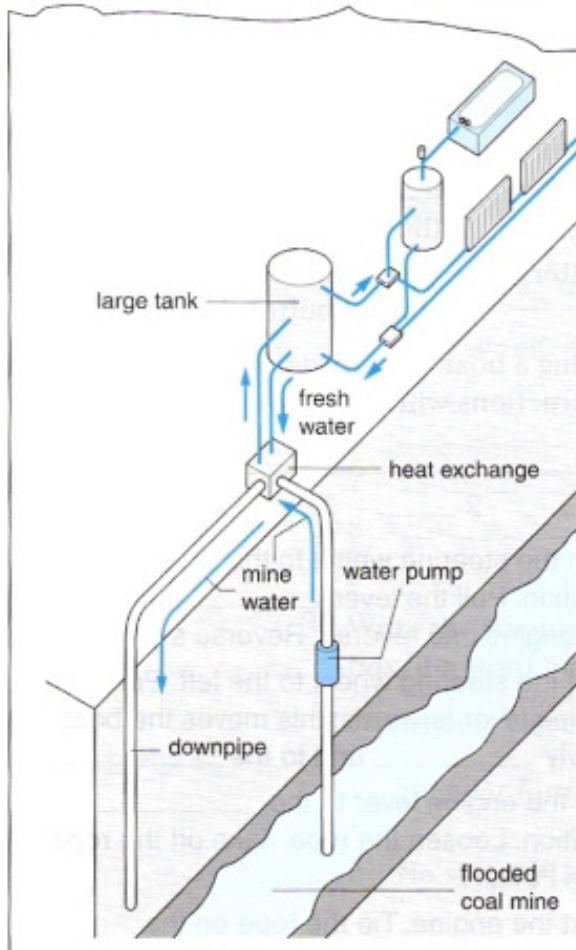
1 A solar panel *heats* water. A fridge ... → *A fridge cools water.*

2 *Hot* water *rises* to the *top* of a water tank. →

3 The *inlet* pipe for *cold* water is *below* the pump. →

4 Water *enters* the tank through the *inlet* pipe. →

5 *Push* the shower head *into* the pipe. →



3 Look at the diagram. Warm water comes up from underground and heats water for the houses. Use the verbs and prepositions in the box to complete the description of the heating system.

flow leave push rise above
below into through to out of

In this system, there are houses (1) a flooded coal mine. At 170 metres (2) _____ ground, the temperature of the mine water stays at 14.5 °C. The water pump brings up the mine water and (3) _____ it (4) _____ the heat exchanger. The mine water comes (5) _____ the heat exchanger and (6) _____ back into the coal mine (7) _____ the downpipe.


In the heat exchanger, the temperature of the fresh water (8) _____ to 55 °C. This warm water then flows to a large tank. Then it (9) _____ the large tank and goes (10) _____ the houses.

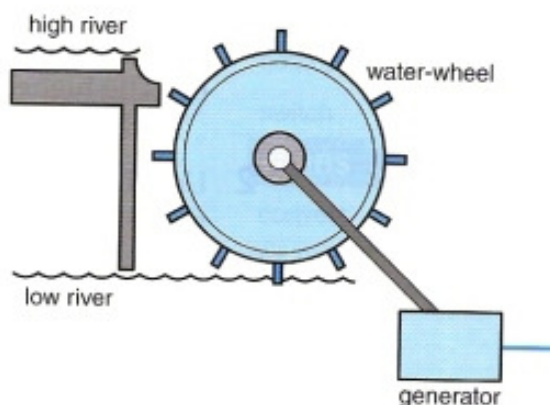
2 Electrical circuit

1 Match the words in the box to sentences 1–7.


battery cable controller lamp solar panel electrical current switch

- 1 shines a light when the switch is on: *lamp*
- 2 converts the sun's energy into an electrical current: _____
- 3 stores electricity: _____
- 4 When a _____ is closed, the electrical current can flow.
- 5 DC is a type of _____.
- 6 Electricity passes through the _____ to the lamp or the battery.
- 7 carries the electrical current: _____

2  13 Look at the diagram for a water-wheel and a generator which supplies current to a workshop next to the river. Complete the sentences with the present simple. Then listen and check your answers.



- 1 If the river is high, and the workshop is open, *the current flows from the generator into the workshop.* (current / flow / generator / workshop)
- 2 If the river is high, and the workshop is closed, _____
_____. (current / flow / generator / batteries)
- 3 If the river is low, and the workshop is open, _____
_____. (current / flow / batteries / workshop)
- 4 If the river is low, and the workshop is closed, _____
_____. (current / not / flow)
- 5 If the batteries are full, _____
_____. (current / not / flow / generator / batteries)
- 6 If the batteries are empty, _____
_____. (current / not / flow / batteries / workshop)

3  14 Listen to the dialogue. Circle the correct specifications for the items.

- 1 Solar panels a) 4×16 W b) 40×60 W c) 4×60 W
- 2 Controller a) 1×3 A b) 1×5 A c) 1×15 A
- 3 Batteries a) 4×12 V, 50 Ah b) 4×12 V, 100 Ah c) 4×15 V, 150 Ah
- 4 Lamps a) 6×20 V, 8 W b) 16×12 V, 18 W c) 6×12 V, 8 W
- 5 Cable a) 2.5 mm, 30 amps b) 6 mm, 53 amps c) 16 mm, 100 amps
(12 metres)

3 Cooling system

1 Complete these sentences for a world weather forecast. Write the temperatures as words.

- The night-time temperature in Helsinki will be *minus two degrees Fahrenheit*. (-2 °F)
- The day-time temperature in Mexico City will be *twenty-one degrees Celsius*. (21 °C)
- The day-time temperature in Los Angeles will be _____ (75 °F)
- The coldest night-time temperature in Moscow will be _____ (-8 °C)
- The day-time temperature in Tunis will be _____ (24 °C)
- The highest day-time temperature in Karachi will be _____ (33 °C)

2 Use the words in the box to answer the questions with short answers. Use some of the words twice.

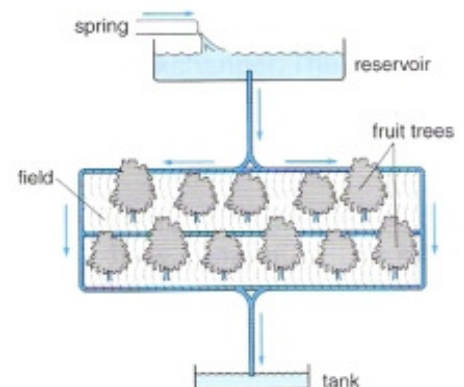
cool water engine fan hot water thermostat two hoses water pump

- What pushes cool water round the engine? *The water pump*
- What connects the radiator to the engine? _____
- What controls the temperature of the engine? _____
- What flows from the engine to the radiator? _____
- What blows air through the radiator? _____
- What sinks to the bottom of the radiator? _____
- What cools the water in the radiator? _____
- What passes along the bottom hose and back to the engine? _____
- What drives the water pump? _____

3 Look at the diagram for a watering system. Complete the sentences with the words in the box. Put the verbs into the present simple.

around at the top at the bottom from into out of through

- From the spring, water (flow) *flows* to a reservoir *at the top* of the hill.
- _____ the reservoir, water (pass) _____ a pipe to the field.
- The pipe (go) _____ a field of fruit trees.
- Water (leave) _____ the pipe _____ small holes.
- The water then (flow) _____ the fruit trees.
- A little water (flow) _____ the bottom of the field.
- This water (enter) _____ a tank _____ of the hill.



4 Word list

HEATING AND COOLING		PREPOSITIONS OF MOVEMENT	ELECTRICAL
NOUNS	VERBS		NOUNS
engine	blow	around	battery
fan	connect	into	cable
hose	control	out of	conductor
inlet	cool	through	controller
radiator	drive	to	electrical circuit
shower head	enter		electrical current
solar panel	flow		energy
thermostat	go		lamp
valve	heat		solar panel
water pipe	leave		switch
water pump	move		VERBS
water tank	pass		convert
	push		flow
	rise		shine
	sink		short-circuit

1 Complete the sentences with verbs from column 2.

- 1 Cold water _____ the system through the inlet.
- 2 Water _____ into the tank through a pipe.
- 3 The sun _____ the water in the solar panel.
- 4 Hot water _____ to the top of the tank.
- 5 Cold water _____ to the bottom of the tank.
- 6 Hot water _____ the system through the shower head.

2 Match the sentence halves.

- | | |
|---------------------------|-----------------------------------|
| 1 The water pump pushes | a) the temperature of the water. |
| 2 The thermostat controls | b) air through the radiator. |
| 3 The two hoses connect | c) the hot water from the engine. |
| 4 The fan blows | d) water around the engine. |
| 5 The radiator cools | e) the radiator to the engine. |

1 Materials testing

1 Make sentences about the materials with 'can ..., but ... can't', or 'can ... and ... can'.

1 (bend / metal / wood) *You can bend metal, but you can't bend wood.*

2 (heat / air / water) *You can heat air and you can heat water.*

3 (melt / plastic / wood)

4 (scratch / glass / metal)

5 (stretch / nylon / glass)

6 (break / glass / wood)

7 (cut / wood / metal)

8 (compress / air / glass)

2 A lecturer is showing a DVD of a test. Complete the description. Use the present continuous.



Hello. Now we can watch the DVD of a car crash. Here they (1) *are testing* (test) the material for the seatbelt. The human dummy (2) _____ (sit) in the test car. This dummy weighs 90 kilos. Here the technician (3) _____ (tighten) the nylon seatbelt around the dummy. Now the technician (4) _____ (start) the engine of the radio-controlled car.

Look at the crash in slo-mo (= slow motion). The car (5) _____ (run) into the concrete block at 40 kph. The body of the dummy (6) _____ (stretch) the nylon seatbelt. And see, the dummy (7) _____ (touch) the airbag. Look carefully. (8) _____ the dummy's face _____ (strike) the front window? No, it isn't. There is no contact with the front window.

3 Write questions and answers for the pictures.



1 A: *Are you pushing the handles?*
B: *No, I'm rowing.*

2 A:
B:

3 A:
B:

4 A:
B:

5 A:
B:

6 A:
B:

2 Properties

- 1 Find the names of 14 materials in the puzzle and circle them. The words go vertically from top to bottom, and sideways from left to right. No words go diagonally.

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

- 2 Underline the two correct adjectives for each material.

- 1 A ceramic cup is flexible/heat-resistant and hard/soft.
- 2 A concrete floor is rigid/flexible and brittle/tough.
- 3 A rubber tyre is rigid/flexible and weak/strong.
- 4 A fibreglass window frame is heat-resistant/soft and rigid/flexible.
- 5 A nylon rope is rigid/flexible and strong/weak.
- 6 The graphite in the middle of a pencil is light/heavy and hard/soft.
- 7 A polycarbonate road sign is rigid/flexible and strong/weak.
- 8 A polystyrene coffee cup is brittle/tough and heavy/light.


- 3 Design a plane. Choose one material for each part of the plane.

- 1 (nose cone / plastic / aluminium)
The nose cone is made of aluminium.
- 2 (wheels / fibreglass / aluminium alloy)



- 3 (tyres / ceramic / rubber composite)
- 4 (frame / composite / polystyrene)
- 5 (inside / fibreglass / rubber composite)
- 6 (seats / plastic / ceramic)
- 7 (engine / fibreglass / aluminium alloy)
- 8 (wings / aluminium alloy / plastic)

3 Buying

- 1  15 Listen and complete the order form. A customer is buying equipment on the phone.

THE CLIMBING SHOP	
ORDER FORM	
Date: <i>23/03/08</i>	Helmet (polycarbonate / fibreglass) (L / M / S)
Product name: _____	
Product no: _____	Rope (nylon / nylon + rubber composite) (50 m / 75 m / 100 m)
Quantity: _____	
Colour: _____	Jacket (cotton / polyester) (XL / L / M / S)
Size: _____	
Material: _____	Backpack (nylon / polyester) (XL / L / M / S)
Price: _____	

- 2  16 Listen and correct the email addresses.

- 1 jclark@eyeway.co.uk → _____
- 2 alex2@antigm.ac.uk → _____
- 3 s.hagen@renault.fra → _____

- 3  17 Listen and write the website addresses.

- 1 News: _____
- 2 Live radio: _____
- 3 Radio-controlled toys: _____

- 4 A customer is phoning a sports shop. Write questions for the answers.

- 1 Q: *What's your surname, please?*
A: It's Badrawi.
- 2 Q: _____
A: B-A-D-R-A-W-I.
- 3 Q: _____
A: 01273 497 633.
- 4 Q: _____
A: Ali dot badrawi at atlas dot com.
- 5 Q: _____
A: Yes. A-L-I dot badrawi at atlas, that's A-T-L-A-S dot com.
- 6 Q: _____
A: I need three helmets.
- 7 Q: _____
A: I'd like white ones, please.
- 8 Q: _____
A: I want to pay in euros, please.

4 Word list

NOUNS (Materials)	NOUNS (Car parts, other)	VERBS	ADJECTIVES
alloy	backpack	bend	brittle
aluminium	cone	break	corrosion-resistant
ceramic	engine	burn	flexible
composite	frame	climb	hard
concrete	helmet	coat	heat-resistant
cromoly	jacket	compress	heavy
diamond	piston	corrode	light
fibreglass	radiator	drop	rigid
graphite	rope	heat	soft
nylon	spoiler	hold	strong
plastic	tyre	melt	tough
polycarbonate	vehicle	row	weak
polyester	wheel	run	PHRASES FOR EMAILS
polystyrene	wing	scratch	
rubber		stretch	
steel		strike	
titanium		touch	
			dash
			dot
			forward slash
			hyphen
			underscore

1 Memory test. What is a racing car made of? Write the materials from column 1.

- The nose cone *is made of fibreglass.*
- The wheels *are made of* _____
_____.
- The frame _____.
- The tyres _____.
- The radiator _____.
- The engine _____.
- The pistons are coated with _____.
- The wings are made of _____ and
_____.

2 Write the opposites of the adjectives from the list in column 4.

- Nylon isn't weak. It's *strong.*
- Polystyrene isn't tough. It's _____.
- Graphite isn't hard. It's _____.
- Rubber isn't rigid. It's _____.
- Aluminium isn't heavy. It's _____.

Section 1

1 Use the words from the box to complete the phone dialogues.

about are here here how I'm OK thanks that this

- | | |
|---|--|
| <p>1 A: Hello?
B: Hello. Is (1)_____ Paulo?
A: Yes.
B: It's Sven (2)_____.
A: Oh, hi, Sven.
B: Hi. How (3)_____ things?
A: Great, (4)_____. How are you?
B: I'm (5)_____.</p> | <p>2 A: Hello. Mona Hall (6)_____.
B: Oh, hi, Mona. (7)_____ is Ingrid.
A: Hi, Ingrid.
B: Hi. (8)_____ are you?
A: Very well. How (9)_____ you?
B: (10)_____ fine, thanks.</p> |
|---|--|

2 Write the -ing forms of the verbs on the correct line.

bend climb cut dive drive drop grip heat hold
leave move pull push rise run sit strike swim

- 1 Add -ing: bending, _____

- 2 Double the last letter and add -ing: cutting, _____

- 3 Drop the -e and add -ing: diving, _____

3 Complete the dialogue about the engine's cooling system. Put the verbs into the present continuous. One verb is used twice.

blow drop go push rise run work

- A: Is everything OK?
B: No. The engine's cooling system *isn't working*. The temperature of the water _____.
- A: _____ the fan _____ air through the radiator?
B: Yes, the fan is fine.
- A: _____ the pump _____ water round the engine?
B: Yes, the pump is working.
- A: Look! That clip on the bottom hose is loose. Water _____ out of the hose. So the cold water _____ not _____ back to the engine. Tighten the clip.
B: _____ the water _____ out of the hose now?
A: No. Check the temperature.
B: Ah! The temperature _____. Good!



Section 2

1 Match phrases from the table to make sentences.

warm ice cubes	sink
pull a rubber band	burn
strike a ceramic cup very hard	break
heat water to 100 °Celsius	stretch
cool water	melt
heat pieces of wood	boil

If you warm ice cubes, they melt.

2 Read the text and complete the table below.



This sailboard is made from light, strong and flexible materials. The board is strong but light. It is made of polystyrene, coated with fibreglass. The mast is strong and flexible. It is made of polycarbonate. The mast and the boom support the sail. The boom is rigid and strong. It is made of aluminium, coated with rubber. The sail is light but strong. It is made of a mixture of nylon and polyester. Fixed to the end of the boom is a strong rope. It is made of nylon. The rigid daggerboard and fin are made of polycarbonate. There is a pivot at the foot of the mast. This is strong and flexible. It is made of rubber.

Part	Material	Properties
board	<i>polystyrene, fibreglass</i>	<i>strong, light</i>
mast		
boom		
sail		
rope		
daggerboard		
fin		
pivot		