

5 Tied to Technology

page 57

- 5.1 sophisticated** (adj) /sə'fɪstɪkeɪtɪd/
A sophisticated machine, system, etc is well design and often complicated. • *Computer programs are becoming more sophisticated all the time!*
- 5.2 range of movement** (expr) /reɪndʒ əv 'mu:vmənt/
the way in which or how well sb can move a part of their body • *The operation gave his shoulder a greater range of movement.*

Reading

page 58

- 5.3 costly** (adj) /'kɒstli/
expensive • *NASA has stopped building space shuttles because it cannot pay for such a costly programme.* > cost (v, n)
- 5.4 irrelevant** (adj) /ɪ'reləvənt/
not relating to a particular situation and therefore not important • *Many people think a knowledge of Latin is irrelevant in our modern world.*
> irrelevance (n) ☞ Opp: relevant
- 5.5 revolutionary** (adj) /revə'lu:ʃənri/
bringing great change • *The Internet caused revolutionary changes in the way we communicate with each other.* > revolution (n), revolutionise (v)
- 5.6 spectacular** (adj) /spek'tækjʊlə/
impressive • *The take-off of the space shuttle was a spectacular sight.* > spectacle (n)
- 5.7 wasteful** (adj) /'weɪstfʊl/
using too much • *Don't be wasteful with water; turn the tap off while you brush your teeth.*
> waste (v, n)

Word Focus

page 58

- 5.8 beam** (v) /bi:m/
send • *The torch beamed a light through the darkness.* > beam (n)
- 5.9 distort** (v) /dɪs'tɔ:t/
change the way sth looks so it becomes hard to recognise • *The old mirror distorted her reflection, so she looked strange.* > distortion (n), distorted (adj)
- 5.10 in earnest** (expr) /ɪn 'ɜ:nɪst/
seriously; with energy and determination
• *She started work on her report in earnest a week before it was due.*
- 5.11 determination** (n) /dɪtɜ:mɪ'neɪʃn/
a quality that makes you continue and not give up • *John showed a lot of determination when he began training every day for the marathon.*
> determined (adj)

- 5.12 emit** (v) /ɪ'mɪt/
send out • *The fire alarm emitted a very loud noise and everyone ran out of the building.*
> emission (n)
- 5.13 pulse** (n) /pʌls/
an amount of sound that is produced by sth for a short time • *The radar emitted a pulse which showed where the submarine was.*
> pulse (v)

Reading

pages 58–59

- 5.14 revolutionise** (v) /revə'lu:ʃənaɪz/
change sth completely • *Smartphones have revolutionised mobile phone technology.*
> revolution (n), revolutionary (adj)
- 5.15 thanks to** (expr) /θæŋks tu:/
because of • *Thanks to archaeologists we are always learning more about the ancient world.*
- 5.16 point out** (phr v) /pɔɪnt aʊt/
draw attention to • *The teacher pointed out where we had made mistakes in our physics exam.*
- 5.17 atmosphere** (n) /'ætməsfiə/
layer of gas around a planet • *The Earth's atmosphere protects us from harmful rays from the sun.* > atmospheric (adj)
- 5.18 precise** (adj) /prɪ'saɪs/
exact • *This microscope is precise and allows you to see great detail.* > precision (n), precisely (adj) ☞ Opp: imprecise
- 5.19 in orbit** (expr) /ɪn 'ɔ:bɪt/
circling the Earth • *There are many satellites in orbit around the Earth.*
- 5.20 rocket scientist** (n) /'rɒkɪt 'saɪəntɪst/
sb who designs rockets • *The rocket scientists wanted to design a more economical rocket.*
- 5.21 astrophysicist** (n) /,æstrəʊ'fɪzɪsɪst/
sb who studies astrophysics (the structure of the stars and the forces that influence them)
• *The astrophysicist made an exciting new discovery about a distant galaxy.*
- 5.22 initial** (adj) /ɪ'nɪʃl/
first • *Our initial idea was to see Star Wars, but the cinema was full.* > initially (adv)
- 5.23 name sb/sth after sb/sth** (expr) /neɪm 'sʌmbədi/'sʌmθɪŋ 'ɑ:ftə sʌmbədi/'sʌmθɪŋ/
give sb or sth the same name as another person or thing • *They have named many theatres after famous actors.*
- 5.24 service** (v) /'sɜ:vɪs/
If sb services a machine, they examine it and keep it working well. • *It's important that someone services your car regularly.* > service (n)

- 5.25 degrade** (v) /di:'greɪd/
decay; separate into smaller pieces • *A telescope that degrades in orbit will break into many pieces.*
➤ degradation (n)
- 5.26 successor** (n) /sʌk'sesə/
a machine or person that takes the place of another one • *The DVD recorder was the successor of the VCR.* ➤ succeed (v)
- 5.27 sonar mapping** (n) /'səʊnə 'mæpɪŋ/
creating a map using sound reflection • *Sonar mapping can be used to measure the depth of the sea.*
- 5.28 extraordinary** (adj) /ɪk'strɔ:dnri/
surprising, unusual or impressive • *What an extraordinary idea!*
- 5.29 bat** (n) /bæt/
a mouse-like animal with wings • *The cave was full of bats hanging from the rock.*
- 5.30 determine** (v) /dɪ'tɜ:mɪn/
discover • *He determined his location by looking at the map.*
- 5.31 bounce** (v) /baʊns/
If light or sound bounces, it hits a surface and then moves quickly away from it. • *The bat could work out its location by bouncing sounds off the cave walls.* ➤ bounce (n)
- 5.32 echo** (n) /'ekəʊ/
a sound that you hear again after a loud noise because it was made near sth such as a wall • *The echo of our voices in the empty room sounded strange.* ➤ echo (v)
- 5.33 structure** (n) /'strʌktʃə(r)/
the way that sth is made • *The student was studying the structure of a bird's brain.*
- 5.34 loudspeaker** (n) /laʊd'spi:kə/
a piece of equipment used to emit sound • *We found the music at the concert too loud because we were standing right next to a loudspeaker.*
- 5.35 ping** (n) /pɪŋ/
a short, high-pitched noise • *He pressed the bell at hotel reception and it made a loud ping.*
➤ ping (v)
- 5.36 reflect** (v) /rɪ'flekt/
send back an image, light or sound off a surface • *She looked at her face reflected in the mirror.*
➤ reflection (n)
- 5.37 capture** (v) /'kæptʃə/
catch • *The robber was captured on the bank's video system.*
- 5.38 fit (with)** (v) /fɪt wɪð/
equip (with) • *The tyres are fitted with chains so the car can drive on icy roads.*
- 5.39 record** (v) /rɪ'kɔ:d/
write down; keep a record of sth • *The black box recorded every movement of the plane.*
➤ record, recording (n)

- 5.40 depth** (n) /depθ/
how deep sth is • *The depth of the sea here is over 50 metres.* ➤ deep (adj), deepen (v)
- 5.41 plain** (n) /pleɪn/
a flat area of land • *The plains in Thessaly are used for farming because the flat land is fertile.*
- 5.42 geological feature** (n) /dʒi:ə'lɒdʒɪkl 'fi:tʃə/
a particular quality of the land • *The cliffs of Santorini are a well-known geological feature.*
- 5.43 complicated** (adj) /'kɒmplɪkeɪtɪd/
not simple • *Our maths teacher set us two complicated problems which were too hard for me to solve.* ➤ complicate (v), complication (n)
- 5.44 detect** (v) /dɪ'tekt/
find • *The sonar equipment detected a large object on the ocean floor that turned out to be a ship.*
➤ detection, detective (n)

Space

astrophysicist	rocket scientist
atmosphere	universe
in orbit	

Sound

echo	pulse	sonar
emit	record	
ping	reflect	

Vocabulary

page 60

- 5.45 proof** (n) /pru:f/
sth that shows sth to be true • *This photo of you at the party is proof that you were there.* ➤ prove (v)
- 5.46 valid** (adj) /'vælɪd/
reasonable and generally accepted • *Her ideas were different but they were perfectly valid.*
- 5.47 excursion** (n) /ɪk'skɜ:ʃn/
a short trip that a group of people take to visit a place for pleasure • *The excursion to Sounion would have been better if the coach hadn't broken down.*
- 5.48 lecture** (n) /'lektʃə/
a talk on a particular subject that sb gives to students in a university • *The students didn't understand a word of their first lecture on astrophysics.* ➤ lecture (v), lecturer (n)
- 5.49 interactive** (adj) /ɪntər'æktɪv/
An interactive computer program, game, etc allows you to communicate with it and reacts to your actions. • *I love playing interactive computer games with other people.* ➤ interact (v), interaction (n)
- 5.50 wind turbine** (n) /wɪnd 'tɜ:bain/
a building with parts that turn around in the wind, used to produce electricity • *We use a wind turbine to heat water.*

- 5.51 originate** (v) /ə'ri:dʒineɪt/
come from • *The Olympic Games originated in Greece.* > origin (n), original (n, adj)
- 5.52 generate** (v) /'dʒenəreɪt/
produce • *This power plant generates enough electricity for half the city.* > generator (n)
- 5.53 run out (of sth)** (phr v) /rʌn aʊt (ɒv 'sʌmθɪŋ)/
have no more of sth • *We've run out of sugar. I'll go and get some.*
- 5.54 filthy** (adj) /'fɪlθi/
very dirty • *Wash your hands! They're filthy!*
> filth (n)
- 5.55 answering machine** (n) /'ɑ:nʒərɪŋ mə'ʃi:n/
a machine connected to a phone that voice messages can be left on • *He left a message on her answering machine.*
- 5.56 cash machine** (n) /kæʃ mə'ʃi:n/
a machine in or outside a bank from where you can get money with a plastic card • *I haven't got any money on me, so I'll stop at the cash machine to withdraw some.*
- 5.57 sewing machine** (n) /'səʊwɪŋ mə'ʃi:n/
a machine you can sew clothes with • *Mum made me a new skirt on her sewing machine.*
- 5.58 vending machine** (n) /'vendɪŋ mə'ʃi:n/
a machine you can buy snacks and drinks from with coins • *Put your coins in that slot in the vending machine and then choose the snack you want.*
- 5.59 count** (v) /kaʊnt/
add up and find the number • *Please count how many students are at the lecture.*
- 5.60 measure** (v) /'meɪʒə/
find the size or quantity of sth using standard units • *Use a ruler to measure the length of the line.*
> measurement (n)
- 5.61 release** (v) /rɪ'li:z/
let sth such as a gas, liquid, etc spread into the area around it • *Oil from the ship was released into the sea.* > release (n)
- 5.62 tool** (n) /tu:l/
an object used to make or repair things
• *Dad can't fix your bike without his tools.*
- 5.63 lose** (v) /lu:z/
not know where sth is • *I've lost my notes; I can't find them anywhere.* > loss (n)
- 5.64 miss** (v) /mɪs/
not go somewhere or do sth • *He missed the chance to go on the museum trip because he was ill.*
- 5.65 price** (n) /praɪs/
the money you pay to buy sth • *The price of petrol is increasing all the time.* > pricey (adj)
- 5.66 cost** (n) /kɒst/
the money needed to buy, do or make sth • *The cost of building satellites must be astronomical.*
> cost (v), costly (adj)

- 5.67 overwhelm** (v) /əʊvə'welɪm/
If sth overwhelms sb, it is too much or too difficult to deal with. • *The instructions for her new computer overwhelmed her and she had no idea what to do.* > overwhelming (adj)
- 5.68 auditory** (adj) /'ɔ:dətəri/
relating to your ability to hear • *The scientist wrote an article about the auditory areas of the brain.*
- 5.69 stimulant** (n) /'stɪmjələnt/
sth that makes the mind or body more active
• *Coffee wakes you up as it contains the stimulant caffeine.* > stimulate (v), stimulation (n)
- 5.70 aggressive** (adj) /ə'gresɪv/
angry and ready to attack • *She doesn't walk her new puppy in the park because there are some aggressive dogs there.* > aggression (n)
- 5.71 limitation** (n) /,lɪmɪ'teɪʃn/
a rule that does not allow sth to increase beyond a certain point • *There should be some limitations on the use of cars in the city.* > limit (v, n)
- 5.72 addict** (n) /'ædɪkt/
sb who can't stop doing sth • *He is a video games addict and plays for hours every day.* > addiction (n), addicted, addictive (adj)
- 5.73 evident** (adj) /'eɪdɪənt/
clear • *It was evident from her sad expression that she had heard some bad news.* > evidence (n), evidently (adv)

Phrasal verbs

hack into	set off
hook up to	set out
plug in	shut down
point out	take on
run out	

Easily confused words

count – measure	price – cost
lose – miss	

Grammar

page 61

- 5.74 update** (v) /ʌp'deɪt/
add the most recent information to something
• *You need to update your computer's anti-virus program.* > update (n)
- 5.75 virus protection** (n) /'vaɪrəs prə'tekʃn/
a program that protects your computer from harmful programs or removes them before they can damage your computer • *If you had updated your virus protection, you wouldn't have lost all your work!*
- 5.76 film projector** (n) /fɪlm prə'dʒektə/
a machine which projects pictures onto a screen
• *Our school has a film projector which teachers use in class to show us documentaries.*

- 5.77 external modem** (n) /eks'tɜːnəl 'məʊdəm/
a device that allows a computer to connect to the Internet • *This old computer connects to the Internet through that external modem over there.*
- 5.78 recharge** (v) /riː'tʃɑːdʒ/
put power back in a battery • *Don't forget to recharge your phone.* > rechargeable (adj)
- 5.79 digital camera** (n) /'dɪdʒɪtl 'kæmrə/
a camera that produces digital images that can be stored on a computer • *He downloaded his holiday photos from his digital camera onto his laptop.*
- 5.80 faulty** (adj) /'fɔːlti/
not working properly; not made correctly
• *The satellite is faulty, so the astronauts have to repair it.* > fault (n)
- 5.81 equation** (n) /ɪk'weɪʒn/
a statement in mathematics that shows that two amounts are equal • *I've got five equations for maths homework.*
- 5.82 forbidden** (adj) /fə'brɪdən/
not allowed • *Eating and drinking on the Metro is forbidden, so please finish your sandwich before you get on the train.* > forbid (v)
- 5.83 check-out** (n) /tʃek-aʊt/
the place in a supermarket where you pay for the things you want to buy • *He realised at the check-out that he had left his wallet at home.*

Electrical equipment

answering machine	external modem
appliance	film projector
device	sewing machine
digital camera	

Speaking

page 63

- 5.84 gadget** (n) /'gædʒɪt/
a small, useful machine or tool • *It's a cool gadget you can use to cut bread into different shapes.*
- 5.85 device** (n) /dɪ'vaɪs/
a machine or tool that does a particular job
• *He invented a device which translates words into six other languages.*
- 5.86 reliant (on)** (adj) /rɪ'laɪənt (ən)/
dependent on • *She lives alone, so she has become reliant on her dog for company.* > rely (v)
- 5.87 remote** (adj) /rɪ'məʊt/
far away from where other people live • *They travelled to a remote island in the Indian Ocean.*

Use your English

page 65

- 5.88 hack into** (phr v) /hæk 'ɪntuː/
illegally enter a computer system • *If someone hacks into your computer, they can steal your personal information.*

- 5.89 hook up to** (phr v) /hʊk ʌp tuː/
connect to a machine • *You can hook your PSP up to the TV and play on a larger screen.*
- 5.90 plug in** (phr v) /plʌg ɪn/
connect a machine to an electricity supply
• *Plug in your laptop to charge the battery.*
👉 Opp: unplug
- 5.91 set off** (phr v) /set ɒf/
cause an alarm to ring • *Don't smoke in the hotel room; you'll set off the alarm.*
- 5.92 shut down** (phr v) /ʃʌt daʊn/
turn a computer off • *Please shut down your computers before you leave the office.*
👉 Opp: start up
- 5.93 electricity supply** (n) /ɪlek'trɪsəti sə'plaɪ/
a source of power • *We had no electricity supply for three hours during the blackout.*
- 5.94 idiot** (n) /'ɪdɪət/
a stupid person; sb who does sth silly • *I was an idiot to leave the key in the door!* 🗉 Syn: fool
- 5.95 appliance** (n) /ə'plaɪəns/
a piece of equipment used in people's homes
• *Washing machines are time-saving appliances.*
- 5.96 introverted** (adj) /'ɪntroʊvɜːtɪd/
quiet and not enjoying spending time with other people • *She's always been shy and introverted.*
- 5.97 stable** (adj) /'steɪbl/
unlikely to move, change or fall • *The patient's condition is stable.* > stability (n)
- 5.98 divorce** (n) /dɪ'vɔːs/
the end of a marriage by law • *Jenny's parents are getting a divorce.* > divorce (v)
- 5.99 operating system** (n) /'ɒpəreɪtɪŋ 'sɪstəm/
a set of programs on a computer that controls the way it works • *Which operating system do you use on your tablet?*
- 5.100 artificial intelligence** (n) /,ɑːtɪ'fɪʃl ɪn'telɪdʒəns/
the study of how to make computers copy human behaviour • *Is it true that artificial intelligence can be used to grade students' essays?*
- 5.101 adapt** (v) /ə'dæpt/
change the way you do things because you are in a new situation • *Jim is finding it hard to adapt to his new school.*
- 5.102 interact** (v) /,ɪntər'ækt/
If two people interact, they communicate with each other, do things together, etc. • *Jon interacts well with the other children in his class.*
> interactive (adj), interaction (n)
- 5.103 take on** (phr v) /teɪk ɒn/
begin to have a certain appearance, quality, role, etc • *Mum's voice took on a more serious tone.*
- 5.104 screenplay** (n) /'skriːnpleɪ/
the words that are written for a film and the instructions for the actors • *The director was in his room, reading the screenplay for his new film.*

- 5.105** **deserve** (v) /dɪ'zɜːv/
If you deserve sth, it is right that you should have it because of your behaviour or actions. • *She's good. She deserves to win.*
- 5.106** **rely (on)** (v) /rɪ'laɪ (ən)/
need or depend on sb or sth • *She relies on her husband for money.*

Writing: an essay (1)

pages 66–67

- 5.107** **column** (n) /'kɒləm/
a regular newspaper or magazine article on a particular subject or by a particular journalist
• *She writes a column on technology for a well-known newspaper.*
- 5.108** **entitle** (v) /ɪn'taɪtl/
give a title to sth • *You should read this article entitled 'Are we alone in the universe?'*
➤ title (n)
- 5.109** **aspect** (n) /'æspekt/
one of the parts or qualities of a situation, problem, idea, etc • *We need to think about the problem from every aspect.*
- 5.110** **depend (on)** (v) /dɪ'pend (ən)/
rely on • *People who don't buy a newspaper usually depend on the TV for news.*
- 5.111** **current affairs** (pl n) /'kʌrənt ə'feəz/
important political or other events that are happening now • *It is important to keep informed about current affairs so you know what is happening in the world.*
- 5.112** **what's more** (expr) /wɒts mɔː/
in addition; used to add more information
• *The pay is good. What's more, I really like the job.*
- 5.113** **drawback** (n) /'drɔːbæk/
disadvantage • *I like it here. The only drawback is the weather.*
- 5.114** **consequently** (adv) /'kɒnsɪkwəntli /
as a result • *She lost her passport. Consequently, she couldn't get on the plane.* ➤ consequence (n)
- 5.115** **socialise** (v) /'səʊʃəlaɪz/
spend time enjoying yourself with other people • *People usually socialise with those who are the same age as they are.* ➤ sociable, social (adj)
- 5.116** **nevertheless** (adv) /,nevəðə'les /
however; but • *She had trained really hard. Nevertheless, she didn't win.*
- 5.117** **thus** (adv) /ðʌs/
because of this; as a result of this • *He had lost his phone. Thus, it was impossible for him to call the police.*

Video: Bionic Mountaineer

page 68

- 5.118** **prosthesis** (n) /prɒs'thiːsɪs/
an artificial body part • *He had a prosthesis fitted after he lost a leg in the war.* ➤ prosthetic (adj)
- 5.119** **artificial** (adj) /ɑːtɪ'fɪʃl/
man-made • *She has an artificial arm because she lost her real arm in an accident.*
- 5.120** **limb** (n) /lɪm/
an arm or leg • *The athlete had strong limbs.*
- 5.121** **amputate** (v) /'æmpjuteɪt/
remove a damaged body part in an operation
• *The climber's toes froze in the snow, so they had to be amputated.* ➤ amputation, amputee (n)
- 5.122** **amputee** (n) /æmpjuː'tiːz/
sb who has had a body part removed • *It is hard for amputees to learn to live without a limb.*
➤ amputate (v)
- 5.123** **attempt** (v) /ə'tempt/
try to do sth difficult • *She attempted to break the world record.* ➤ attempt (n)
- 5.124** **suffer** (v) /'sʌfə/
feel pain • *The climber suffered in the cold for hours before he was rescued.* ➤ suffering (n)
- 5.125** **wander** (v) /'wɒndə/
walk in no particular direction • *We wandered around in the snowstorm with no idea where we were.*
- 5.126** **set out (to do sth)** (phr v) /set aʊt (tə də 'sʌmθɪŋ)/
start doing or working on sth in order to get a particular result • *They set out to build a house in the country.*
- 5.127** **disoriented** (adj) /dɪs'ɔːrɪəntɪd/
confused and lost • *They couldn't see anything in the fog and felt disoriented.*
- 5.128** **expose** (v) /ɪks'pəʊz/
put sb in a situation where they are not protected from sth dangerous • *The winter weather exposed the villagers to the difficulties of cold and snow.*
➤ exposure (n)
- 5.129** **the elements** (pl n) /ðiː 'elɪments/
the weather, especially bad weather • *The mountaineers faced the elements and managed to survive wind and snow.*
- 5.130** **frostbite** (n) /'frɒstbaɪt/
a condition where a body part becomes damaged because of cold • *The climber's fingers got frostbite in the freezing weather.* ➤ frostbitten (adj)
- 5.131** **sensation** (n) /sen'seɪʃn/
a physical feeling • *I've got no sensation in my fingers because they are so cold.*

- 5.132 surgery** (n) /'sɜːdʒəri/
an operation • *He had five surgeries on his leg.*
➤ surgeon (n), surgical (adj)
- 5.133 PhD** (abbr) /piː ɛtʃ 'diː/
abbreviation for Doctor of Philosophy (a very high level university degree that involves doing research in a particular subject) • *She's got a PhD in chemistry.*
- 5.134 rock face** (n) /rɒk feɪs/
a very steep surface of rock on the side of a mountain • *It's amazing to see climbers go up high rock faces.*
- 5.135 astounding** (adj) /ə'staʊndɪŋ/
astonishing • *The amputee's ability to climb on prosthetic legs was truly astounding.* ➤ astound (v)

- 5.136 implement** (v) /'ɪmplɪment/
to make sth such as a law, idea or system start to work or be used • *Everyone liked the plan, but it was never implemented.*

Different adjective endings

astounding	irrelevant
complicated	revolutionary
costly	spectacular
initial	wasteful
interactive	