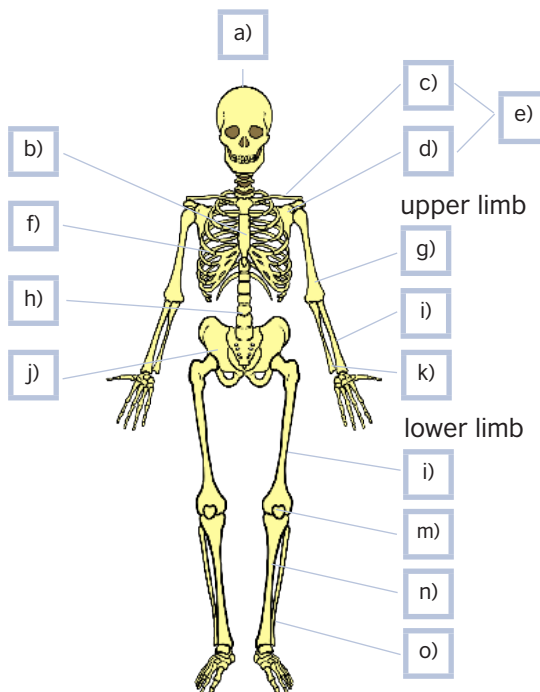


Science

Topic 5: Muscles and Skeletons

Topic 5: Muscles and Skeletons

1. Use the words about the **skeleton** to label the diagram. One of them has been done for you.



clavicle	
femur	
fibula	
humerus	
patella	
pelvic girdle	
radius	
ribs	
scapula	d
shoulder girdle	
skull	
sternum	
tibia	
ulna	
vertebral column	

2. Choose the correct words from the list to fill the gaps in the text about **bones**.

bone marrow	frame	hang	hollow
move around	protect	shape	spongy

The bones of the skeleton perform an important job.

- They form a ^{a)} _____ from which soft body tissues such as skin, muscles and internal organs ^{b)} _____.
- They give your body ^{c)} _____.
- They ^{d)} _____ delicate organs such as your heart and brain.
- They work as levers so you can ^{e)} _____.
- Bones are ^{f)} _____, which makes them light but incredibly strong.
- The hollow part of the bone contains a ^{g)} _____ substance called ^{h)} _____ and this is where your blood cells are made.

3. Underline the correct word to make sentences about **bones and joints**.

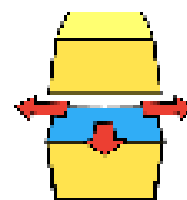
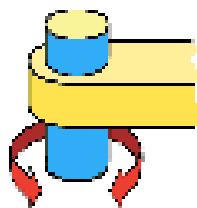
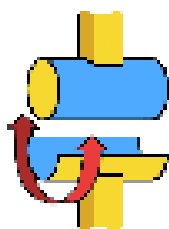
Bones are ^{a)} **skull/stiff**, but where the bones meet, we have joints. Your knees and elbows are joints. Joints ^{b)} **allow/bulge** your body to ^{c)} **bend/dance** and change ^{d)} **shape/shaft**, just like the arms and legs of a wooden puppet. Some joints allow the bones to move more ^{e)} **hollow/freely** than others. The ^{f)} **movement/tendons** in the joints in your fingers move them forwards and backwards but your hip joint can bend your leg in many ^{g)} **locomotion/directions**.

4. Write the phrases below on **movements of joints** in the appropriate boxes in this table.

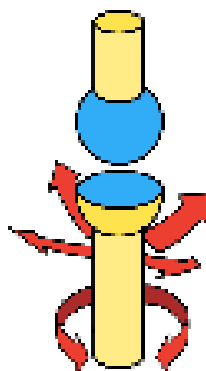
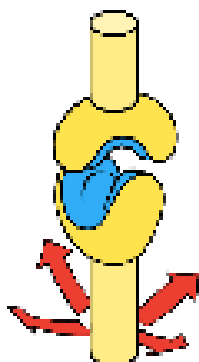
Joint	Type of movement allowed	Type of joint
hip	a)	ball and socket
shoulder blade	b)	gliding
knuckle	c)	hinge
thumb	d)	saddle
elbow	e)	pivot

1	movement up and down, or back and forth, between the upper and lower parts of the fingers, useful for holding something
2	allows you to move the bone at the top of your leg in many directions
3	enables your lower arm to rotate
4	movement between the surfaces of two flat bones moving against each other
5	allows you to move the bone back and forth, side to side, limited rotation, useful to grab something

5. Use the words on **bones and joints** to label the diagrams.



Joint	a)	c)	e)
Body part	b)	d)	f)



Joint	g)	i)
Body part	h)	j)

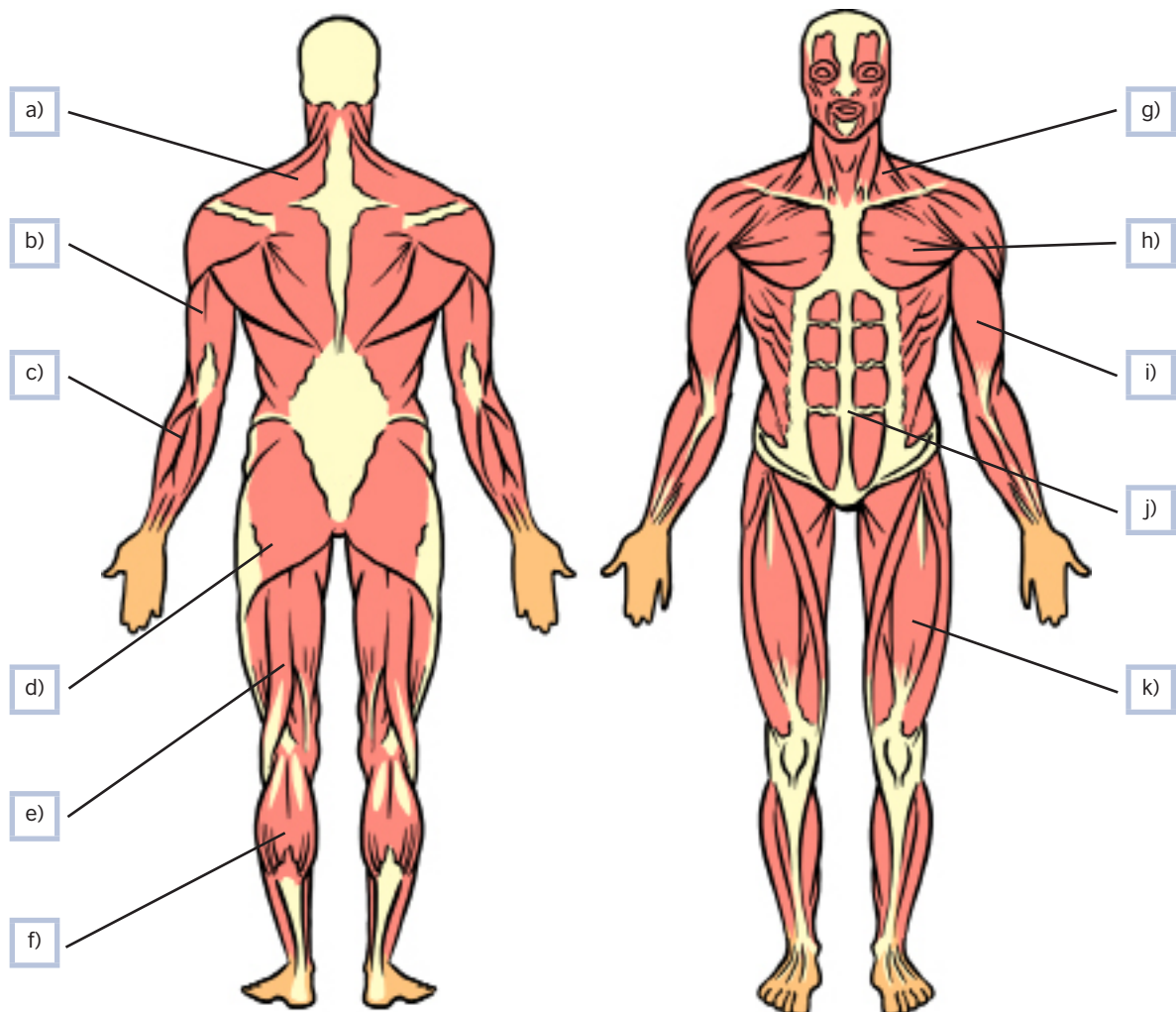
Joint	Body part
ball and socket joint	elbow
gliding joint	knuckle
hinge joint	hip
pivot joint	shoulder blade
saddle joint	thumb

6. Unscramble the letters to make words that fill the gaps in the text about **muscles in the body**.

The muscles are the body's ^{a)} **toroms** _____. Just over a third of your body
^{b)} **sams** _____ is muscle. The gluteus maximus is the largest
^{c)} **clumse** _____ in the body. This is the muscle that provides the
 power to sprint and to ^{d)} **peal** _____ into the air. As well as the named
 muscles, there are thousands of smaller muscles. Your body is able to move ^{e)} **undaro** _____
 because your muscles are joined to your ^{f)} **enobs** _____. Your muscles pull on
 your ^{g)} **toneskle** _____ to move your joints.

7. Use the words about **muscles** to label the diagrams.

abdominals	calves	deltoids	forearm
gluteus maximus	hamstrings	pectoralis	quadriceps
trapezius	triceps	biceps	

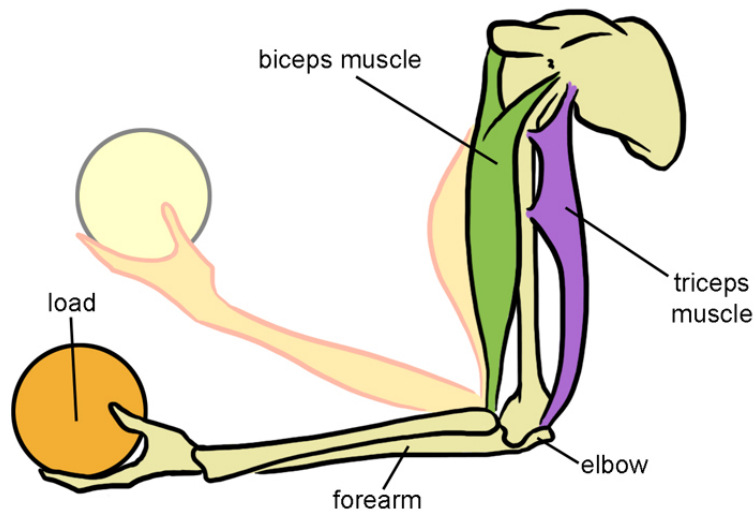


Write your answers here:

a)		b)		c)	
d)		e)		f)	
g)		h)		i)	
j)		k)			

8. Choose the correct words from the list to fill the gaps in the text about **how muscles work.**

Muscles are ^{a)} _____ the bones by strong fibres called ^{b)} _____. If you ^{c)} _____ your arm you can feel the ^{d)} _____ in the inside of your elbow with your other hand. Muscles can only pull; they cannot push. Bending your arm uses one muscle; ^{e)} _____ it uses a different one. The ^{f)} _____ muscle bends your arm. Try it – you'll feel your biceps muscle shorten or ^{g)} _____ and ^{h)} _____ as you bend your arm. The triceps muscle, at the back of your arm, pulls and straightens it again as the biceps ⁱ⁾ _____. Muscles always work in pairs in this way.



attached to
bend
biceps
bulge
contract
relaxes
straightening
tendon
tendons

9. Draw a line between each word about **body care and exercise** and its correct definition.

exercise	a break or crack in a bone.
feel	an arm or a leg.
first aid	basic medical treatment given as soon as someone is injured or becomes ill.
fracture	physical activity done to stay healthy and make the body stronger.
limb	physically powerful and healthy.
run	to be in a particular state as a result of an emotion or a physical feeling.
sprint	to move quickly to a place using your legs and feet.
strong	to run or swim, for example, at a very fast speed for a short period.
walk	to move forwards by putting one foot in front of the other.

10. Find the words about **movement** in the word search.

<p>J Q R F D Q F Z B C S N D G M K</p> <p>F L O J P Z T P S E N H Z L Z S</p> <p>G K P T R O R S E F A X J P E I</p> <p>S I P I S R A E I R W A H R R N</p> <p>L E E N R I N K L W R E N D B N</p> <p>A E S S U I N N F P D E U E I E</p> <p>D K L S A I O G Q N L T T R G I</p> <p>G P T T L I N I C R P N N E E W</p> <p>C I N L T I K K G I S P K L Q I</p> <p>I O X O T L D G R A L V E H M T</p> <p>C I M A M O B I L E A C N P T E</p> <p>R T T P T E S I N H S E U N L R</p> <p>F O R W A R D S O G Y S I L E S</p> <p>R L L I Q C M E E R D R U V X R</p> <p>H X A Q U O T J H P P N F P W E</p> <p>E B A C K W A R D S E I N Q N O</p>	<p>backwards</p> <p>compact</p> <p>contain</p> <p>forwards</p> <p>link</p> <p>mobile</p> <p>motion</p> <p>rotating</p> <p>sliding</p> <p>sprint</p>
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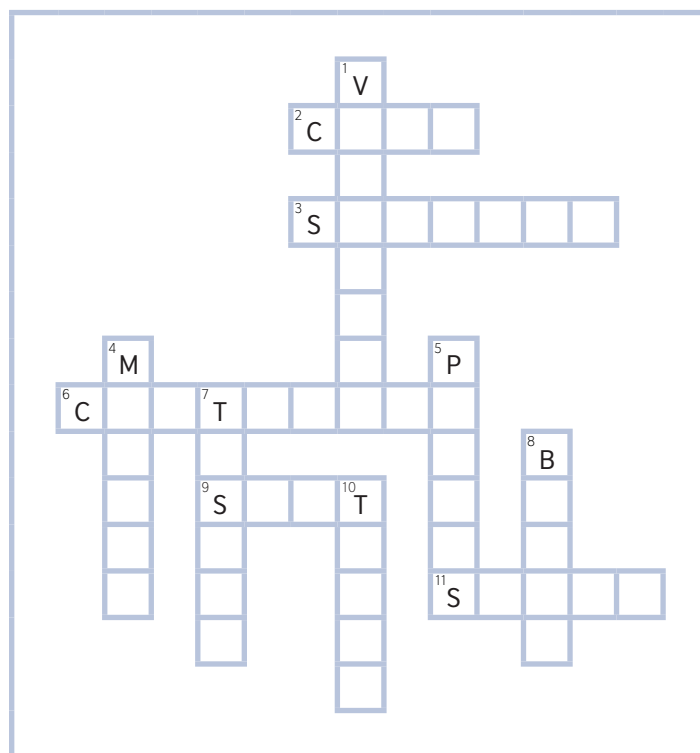
11. Complete the crossword by answering the following questions. All the correct answers are words to do with **muscles and bones**.

Across

2. the smallest part of a living structure that can operate as an independent unit.
3. arrange things so that they are placed one on top of another.
6. a substance that surrounds the joints in your body, or a piece of this substance.
9. a material or surface that is pleasant to touch and not rough or stiff.
11. the row of bones down or along the middle of a human's or animal's back.

Down

1. one of the small bones that form a row down the centre of your back.
4. the flexible tissue found in the interior of bones.
5. the large circular bones that support the lower part of your back and are connected to the bones of your legs.
7. the substance that animal and plant cells are made of.
8. the organ inside your head that allows you to think and feel, and controls your body.
10. the part of your body between waist and head, not including your arms.



Glossary

abdominals	/æb'dɒmɪn(ə)/ plural muscles in the abdomen, the part of the body below the chest, above the pelvis.
allow	/ə'laʊ/ verb [T] to give someone permission to do or have something.
backwards	/'bækwə(r)dz/ adj adv if you move backwards, you move in the direction that is behind you.
ball and socket joint	/bɔ:l ənd 'sɒkɪt / noun [C] a joint in the body which enables bone to move in a 360° angle: <i>hip, shoulder</i> .
be attached to	/ə'tætʃt/ verb [T] to be connected to, to be linked to.
bend	/bend/ verb [I/T] to lean forwards and downwards, or to move the top part of your body forwards and downwards.
bicep	/'baɪseps/ noun [C] the muscle between your shoulder and elbow on the front of your arm that you use when you pull things towards you.
blood cell	/sel/ noun [C] the smallest part of a living structure that can operate as an independent unit. The middle of a cell is called the nucleus. A red blood cell carries oxygen.
body mass	/'bɒdi mæs/ noun [C] the whole physical structure of a person, including the head, arms, and legs.
bone	/bəʊn/ noun [C] one of the hard parts of the skeleton inside the body of a human or animal.
bone marrow	/bəʊn 'mæərəʊ/ noun [C/U] the soft red substance inside the spaces in bones.
brain	/breɪn/ noun [C] the organ inside your head that allows you to think and feel, and controls your body.
bulge	/bʌldʒ/ verb [I] to stick out in a curved shape.
calf	/kɑ:f/ noun [C] the thick back part of your leg between your knee and your ankle, plural calves /kɑ:vz/.
cartilage	/'kɑ:(r)təlɪdʒ/ noun [C/U] a substance similar to bone that surrounds the joints in your body, or a piece of this substance.
clavicle	/'klævɪkl/ noun [C] one of the pair of bones that go across the top of your chest from your shoulder to the bottom of your neck. A less technical name for this is the collarbone.
compact	/'kɒmpækt/ adj smaller than most things of the same kind, small but arranged in a way that uses space very effectively: <i>compact bone</i> .
contain	/kən'teɪn/ verb [T] a container, envelope, room that contains something has something inside it.
contract	/kən'trækt/ verb [I/T] if a substance such as metal contracts, it becomes smaller.
dance	/dɑ:ns/ verb [I/T] to move your feet and your body in a pattern of movements following musical sounds.
deltoids	/'deltɔɪdz/ plural the muscles forming the rounded contour of the shoulder.
direction	/daɪ'rekʃ(ə)n/ noun [C/U] the path that someone moves along when going towards a place.

elbow	/ˈelbəʊ/ noun [C] the part in the middle of your arm, where it bends.
exercise	/ˈeksə(r)saɪz/ noun [U] physical activity done to stay healthy and make the body stronger.
feel	/fi:l/ verb [T] to be in a particular state as a result of an emotion or a physical feeling.
femur	/ˈfi:mə(r)/ noun [C] the bone in the part of the leg above the knee also called the thigh bone.
fibula	/ˈfɪbjələ/ noun [C] the outer narrower bone in the bottom of your leg. The other wider bone is your tibia.
first aid	/eɪd/ noun [U] basic medical treatment given as soon as someone is injured or becomes ill.
forearm	/ˈfɔːr,ɑː(r)m/ noun [C] the lower part of your arm, between your elbow and your wrist.
forwards	/ˈfɔː(r)wə(r)dz/ adv in the direction in front of you.
fracture	/ˈfræktʃə(r)/ noun [C] a break or crack in a bone.
frame	/freɪm/ noun [C/U] [usually singular] the particular shape or size of someone's body.
freely	/ˈfri:li/ adv easily and smoothly, without being stopped or interrupted.
gliding joint	/ˈglɑɪdɪŋ dʒɔɪnt/ noun [C] a joint in the body where bones slide one on top of another: <i>shoulder blade</i> .
gluteus maximus	/ˈgluːtiəs ˈmæksɪməs/ noun [C] the largest and most superficial of the three gluteal muscles. It makes up a large portion of the shape and appearance of the buttocks.
hamstring	/ˈhæm,striŋ/ noun [C] a tendon behind your knee.
hang	/hæŋ/ verb [T] to put something somewhere so that the top part is held in position but the bottom part is loose and can move easily.
hinge joint	/ˈhɪndʒ dʒɔɪnt/ noun [C] a part of your body that can bend where two bones meet that allows movement up and down in one direction only, for example a knee joint or an elbow joint.
hollow	/ˈhɒləʊ/ adj empty inside.
humerus	/ˈhju:mərəs/ noun [C] the bone that connects your shoulder to your elbow.
joint	/dʒɔɪnt/ noun [C] a part of your body that can bend where two bones meet.
knee	/ni:/ noun [C] the part in the middle of your leg, where it bends.
knuckle	/ˈnʌk(ə)l/ noun [C] one of the parts where your fingers can bend or where they join your hand.
leap	/li:p/ verb [I] to jump into the air or over a long distance.
limb	/lɪm/ noun [C] an arm, or a leg.
link	/lɪŋk/ verb [T] to connect two or more places.

locomotion	/ləʊkə'məʊʃ(ə)n/ noun [U] the way that something such as an animal or a vehicle moves.
marrow	/'mæərəʊ/ noun [C/U] the flexible tissue found in the interior of bones: <i>bone marrow</i> .
mobile	/'məʊbaɪl/ adj [only before noun] easy to move and use in different places.
motion	/'məʊʃ(ə)n/ noun [C/U] the process or action of moving.
motor	/'məʊtə(r)/ adj relating to the way that you use muscles and control their movement.
move around	/mu:v/ verb [I/T] to change position or to make someone or something change position. /ə'raʊnd/ adv moving in a circular way.
movement	/'mu:vmənt/ noun [C/U] a change in the position of your body, or a particular way of moving your body.
muscle	/'mʌs(ə)l/ noun [C/U] a piece of flesh that connects one bone to another and is used for moving a particular part of your body.
patella	/pə'telə/ noun medical [C] the bone at the front of your knee. The usual word for this is kneecap.
pectoralis	/'pekt(ə)rælis/ noun [C] a thick muscle which makes up the bulk of the chest muscles: <i>pectoralis major</i> .
pelvic girdle	/'pelvɪk 'gɜ:(r)d(ə)l/ noun [C] consists of the two hip bones.
pelvis	/'pelvɪs/ noun [C] the large circular bones that support the lower part of your back and are connected to the bones of your legs.
pivot joint	/'pɪvət dʒɔɪnt/ noun [C] a joint in the body where the bones turn around a fixed point: <i>forearm</i> .
protect	/prə'tekt/ verb [T] to keep someone or something safe from harm, injury, damage, or loss.
quadriceps	/'kwɒdrɪseps/ plural the large muscles on the front of your thigh.
radius	/'reɪdiəs/ noun [C] the larger outer bone in the lower arm, next to the ulna.
relax	/rɪ'læks/ verb [I/T] to rest and allow yourself to become calm.
rib	/rɪb/ noun [C] one of the long curved bones that are in your chest, plural <i>ribs</i> .
rotating	/rəʊ'teɪtɪŋ/ adj moving in a circle around a fixed central point, or moving something in this way.
run	/rʌn/ verb [I/T] to move quickly to a place using your legs and feet.
saddle joint	/'sæd(ə)l/ noun [C/U] a joint in the body where the bones move in a strict, specific direction: <i>thumb</i> .
scapula	/'skæpjələ/ noun [C] one of the two bones on the sides of your upper back. A less technical name for this is shoulder blade.
shaft	/ʃɑ:ft/ noun [C] the main part of something long and thin, not including the end.
shape	/ʃeɪp/ noun [C/U] the outer form of something.

shoulder	/ˈʃəʊldə(r)/ noun [C] one of the two parts of your body between your neck and the top of your arms.
shoulder girdle	/ˈʃəʊldə(r) ˈɡɜː(r)d(ə)l/ noun [C] or pectoral girdle is the set of bones which connects the upper limb to the axial skeleton on each side. It consists of the clavicle and scapula in humans.
skeleton	/ˈskelɪt(ə)n/ noun [C] the set of bones that supports a human or animal body, or a model of this.
skull	/skʌl/ noun [C] the bones of the head.
sliding	/ˌslaɪdɪŋ/ noun [C] a structure that children play on by climbing up steps and sliding down a slope on the other side; a sudden fall of rock, earth etc from the side of a mountain.
soft	/sɒft/ adj a soft material or surface is one that is pleasant to touch and not rough or stiff.
spine	/spain/ noun [C/U] the row of bones down or along the middle of a human's or animal's back.
spongy	/ˈspʌndʒi/ adj light and full of holes: <i>spongy bone</i> .
sprint	/sprint/ verb [I] to run, swim etc at a very fast speed for a short period.
stacked	/stækd/ adj arranged things so that they are placed one on top of another.
sternum	/ˈstɜː(r)nəm/ noun [C] the flat bone in the middle of your chest also known as breastbone.
stiff	/stɪf/ adj firm and difficult to bend.
straighten	/ˈstreɪt(ə)n/ verb [I/T] to make something straight, in a line, correct.
strong	/strɒŋ/ adj physically powerful and healthy.
tendon	/ˈtendən/ noun [C] one of the parts of your body that connects a muscle to a bone.
tibia	/ˈtɪbiə/ noun [C] the bone at the front of your lower leg, between your knee and your ankle. A more usual word is shinbone.
tissue	/ˈtɪʃuː/ noun [U] the substance that animal and plant cells are made of.
trapezius	/trəˈpiːziəs/ noun [C] a large, superficial muscle that spans the neck, shoulders and back.
tricep	triceps /ˈtraɪseps/ noun [C] the muscle at the back of your upper arm.
trunk	/trʌŋk/ noun [C] the part of your body between waist and head, not including your arms or head.
ulna	/ˈʌlnə/ noun [C] the longer of the two bones that connect your wrist to your elbow, next to the radius.
vertebra	/ˈvɜː(r)təbrə/ noun [C] one of the small bones that form a row down the centre of your back, plural vertebrae.
vertebral column	/ˌvɜː(r)təbrəl ˈkɒləm/ noun [C] the main bone structure down your back that forms your spine.

walk	/wɔ:k/ verb [I/T] to move forwards by putting one foot in front of the other.
wrist	/rɪst/ noun [C] the part of your body between your hand and your arm.

Key:

1. a) skull, b) sternum, c) clavicle, d) scapula, e) shoulder girdle, f) ribs, g) humerus, h) vertebral column, i) radius, j) pelvic girdle, k) ulna, l) femur, m) patella, n) tibia, o) fibula

2. a) frame, b) hang, c) shape, d) protect, e) move around, f) hollow, g) spongy, h) bone marrow

3. a) stiff, b) allow, c) bend, d) shape, e) freely, f) movement, g) directions

4. a) 2, b) 4, c) 1, d) 5, e) 3

5. a) hinge joint, b) knuckle, c) pivot joint, d) elbow, e) gliding joint, f) shoulder blade, g) saddle joint, h) thumb, i) ball and socket joint, j) hip

6. a) motors, b) mass, c) muscle, d) leap, e) around, f) bones, (g) skeleton

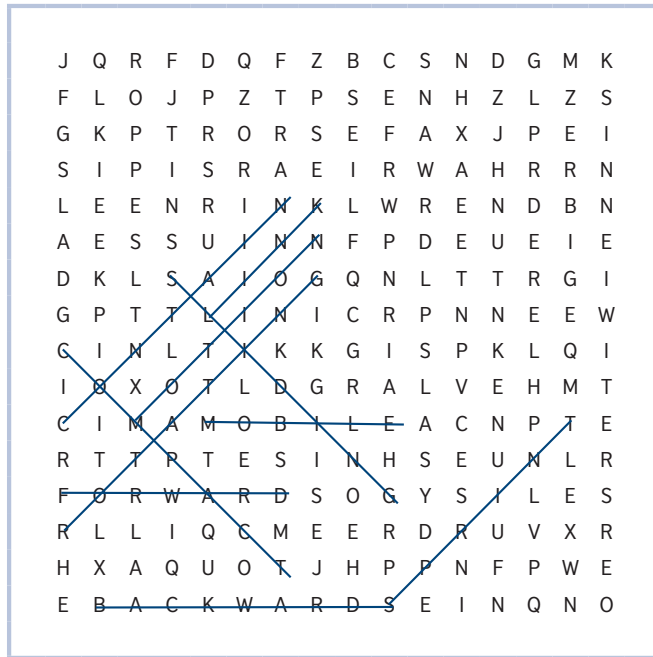
7. a) trapezius, b) triceps, c) forearm, d) gluteus maximus, e) hamstrings, f) calves, g) deltoids, h) pectoralis, i) biceps j) abdominals k) quadriceps

8. a) attached to, b) tendons, c) bend, d) tendon, e) straightening, f) biceps, g) contract, h) bulge, i) relaxes

9.

exercise	a break or crack in a bone.
feel	an arm or a leg.
first aid	basic medical treatment given as soon as someone is injured or becomes ill.
fracture	physical activity done to stay healthy and make the body stronger.
limb	physically powerful and healthy.
run	to be in a particular state as a result of an emotion or a physical feeling.
sprint	to move quickly to a place using your legs and feet.
strong	to run or swim, for example, at a very fast speed for a short period.
walk	to move forwards by putting one foot in front of the other.

10.



11. **Across:** 2) cell, 3) stacked, 6) cartilage, 9) soft, 11) spine; **Down:** 1) vertebra, 4) marrow, 5) pelvis, 7) tissue, 8) brain, 10) trunk