

## Science Subject Knowledge Audit

The purpose of the audit is to help you identify the strengths and areas for development within your science subject knowledge. Please complete the audit without referring to GCSE textbooks or revision guides. This will ensure that your score is a true reflection of your knowledge to date. Please just circle what you think is the correct answer in the multiple-choice questions below and bring this with you when you start university. The primary science programme aims to support you in the development of your subject knowledge over the course of the year, so please do not be unduly concerned if you find this audit challenging - we all have areas of strength and areas that we need to develop.

### 1. Which of the following (A-D) correctly completes the sentence below?

#### All living organisms:

- A Excrete, grow, move, reproduce, respire, think and are sensitive to their surroundings.
- B Excrete, feed, grow, move, reproduce, respire and are sensitive to their surroundings.
- C Excrete, grow, move, mutate, respire and are sensitive to their surroundings.
- D Excrete, feed, grow, reproduce, respire, signal and are sensitive to their surroundings.

### 2. Which of the following (A-D) best describes the role of the circulatory system in humans?

- 1. Carries food to body cells.
- 2. Carries oxygen around the body.
- 3. Carries waste products.

- A 1, 2 and 3
- B 1 and 2 only
- C 2 and 3 only
- D 1 and 3 only

### 3. In living things, organs:

- A. Consist of cells of the same type.
- B. Carry out a particular function.
- C. Are only concerned with reproduction.
- D. Have the capacity for regeneration.

**4. Keeping healthy has mainly to do with:**

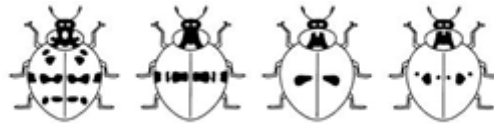
- A The influence of other people on the way we run our lives.
- B Getting enough food and exercise.
- C Avoiding harmful substances which may damage our health.
- D A variety of factors which affect us mentally and physically

4.

**5. What name is given to a group of organisms, with similar characteristics, which can breed with each other to produce fertile offspring?**

- A A clone.
- B A family.
- C A genus.
- D A species.

**6. Illustrated below are some 2 spot ladybirds. Which biological feature does this represent?**



- A Growth.
- B Reproduction.
- C Selection.
- D Variation.

**7. For characteristics to be inherited by living organisms:**

- A Mutations occur within the cell of the organism.
- B There has to be a mutation of genes within cells.
- C Asexual reproduction has to take place.
- D Genetic material has to be passed from one generation to another.

- 8. Which of the following results in the least variation among offspring?**
- A Sexual reproduction
  - B Asexual reproduction (cloning)
  - C Mutation
  - D Recombination of genetic material.
- 9. Our current understanding of evolution is based on the idea that:**
- A Changes which occur in living things are harmful to the species.
  - B Mutations of genes have led to beneficial changes.
  - C There are a fixed number of living organisms.
  - D Species which breed with other species produce new organisms
- 10. Scientists classify all living things into which of these groups?**
- A Plants and animals.
  - B Plants, animals and fungi.
  - C Plants, animals and bacteria.
  - D Plants, animals, fungi and bacteria..
- 11. A habitat contains:**
- A A wide variety of organisms.
  - B Mainly one species.
  - C Either plants or animals.
  - D Equal numbers of producers and consumers.
- 12. In an ecosystem there is an interaction between all:**
- A Plants living in a habitat.
  - B Animals living in a habitat.
  - C Plants and animals living in a habitat.
  - D Plants and animals and their physical environment.

**13. Which statement about bacteria is correct?**

- A They always cause diseases.
- B They are only found in living organisms.
- C They are only found on dead organisms.
- D They have a wide distribution.

**14. All materials are made up of elements.**

**About how many elements are there?**

- A 10
- B 20
- C 50
- D 100

**15. What is formed when atoms of different elements combine?**

- A A new element
- B New atoms
- C A compound
- D A mixture

**16. The forces holding atoms together are best called:**

- A Attachments.
- B Bonds.
- C Joins.
- D Links.

17. Which of the following is an example of a *chemical* reaction?

- A Ice melting.
- B Iron rusting.
- C Salt dissolving in water.
- D Sugar crystallising

18. Physical changes involve changes in the arrangement and spacing of particles, but no *new* substances are formed.

Which of the following is an example of a physical change?

- A Baking a cake
- B Milk going sour
- C Petrol burning
- D Water evaporating

19. The table gives information about the melting points and boiling points of four substances. Room temperature is about 20°C

Substance	Melting point °C	Boiling point °C
P	-95	111
Q	17	118
R	114	183
S	1455	2835

Which statement is correct?

- A Substance P will freeze solid on a very cold day.
- B Substance Q could be a liquid on some days and solid on others.
- C Substance R never forms a liquid.
- D Substance S cannot evaporate.

20. A substance such as ice becomes liquid when heated, When this happens, the particles:

- A Gain energy.
- B Lose energy.
- C Produce energy.
- D Use energy.

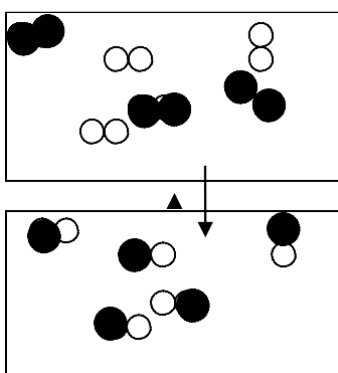
21. **A drop of water contains:**

- A One molecule of water.
- B One hundred molecules of water.
- C One thousand molecules of water.
- D Millions of molecules of water.

22. **A dish of warm water is left to evaporate. Which of the following statements about evaporation is true?**

- A A dish of cold water would evaporate more quickly.
- B A liquid with a higher boiling point than water would evaporate more quickly.
- C Molecules with higher- than-average energy escape from the surface.
- D Warm water would evaporate more slowly on a windy day.

23. **The reaction of hydrogen and iodine can be represented by**



**In this reaction:**

- A Bonds between hydrogen atoms are formed.
- B Bonds between iodine atoms are formed.
- C Bonds between hydrogen atoms and iodine atoms are formed.
- D No bonds are broken or formed.

**24. A closed jar containing ice cubes is placed on a balance. The reading is noted. After an hour the ice cubes have melted. Which one of these statements is correct?**

- A The reading is more because ice cubes float.
- B The reading is less because the volume of the ice cubes has decreased.
- C The reading is less because water is less dense than ice.
- D The reading stays the same because mass is neither lost nor gained.

**25. Particles called electrons are present::**

- A In all forms of matter.
- B Only in matter which conducts electricity.
- C Only in liquid or solid matter.
- D Only in matter which has a charge of electricity passing through it.

**26. Copper wire is a good electrical conductor because:**

- A Some electrons in the metal can move easily within the wire.
- B The particles of copper can move easily within the wire.
- C It is encased in plastic.
- D Copper already contains electricity.

**27. The electrical resistance of a conductor is:**

- A The measure of the difficulty of the flow of electrons through the conductor.
- B A measure of density of the conductor.
- C A measure of the flow of electricity through the conductor.
- D The measure of the voltage which has passed through the conductor.

**28. The batteries in a torch make the bulb light because they:**

- A Transmit electricity to the bulb through the air like radio waves.
- B Give out chemicals which pass around the circuit and are used up.
- C Push the electrons round the circuit in one direction.
- D Make electrons flow outwards to the light bulb where they are used up.

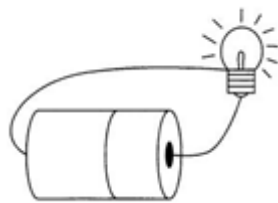
**29. In a complete circuit, the flow of electricity:**

- A Is the same through the switch, through the bulb and along the wire.
- B Is greater through the wire in the bulb than elsewhere in the circuit.
- C Is less through the wire in the bulb than elsewhere in the circuit.
- D Is less at the end of its journey than at the beginning.

**30. The voltage of a torch battery is 1.5volts. This is a measure of:**

- A The size of the battery.
- B The strength of the battery to drive the current.
- C The electrical current coming from the battery.
- D How much energy the battery starts with.

**31. When this circuit is complete:**



- A The bulb transfers power from the battery.
- B The battery gains energy from the bulb and becomes warm.
- C The bulb transfers the energy stored in the battery to light and heat.
- D The potential energy is controlled by the length of the electrical wire



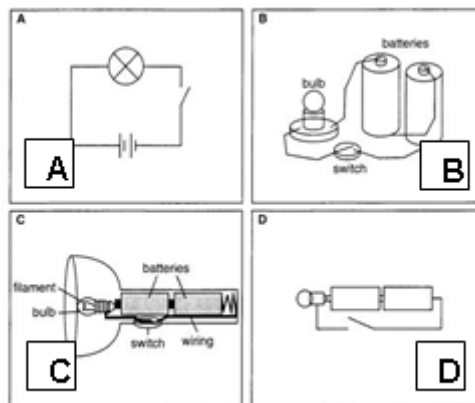
**32. A table lamp is designed to take a bulb of 100 watts maximum:  
Watts are a measure of:**

- A The rate at which energy is transferred to the bulb
- B The current which flows through the bulb
- C The voltage needed to light the bulb
- D The size of the bulb

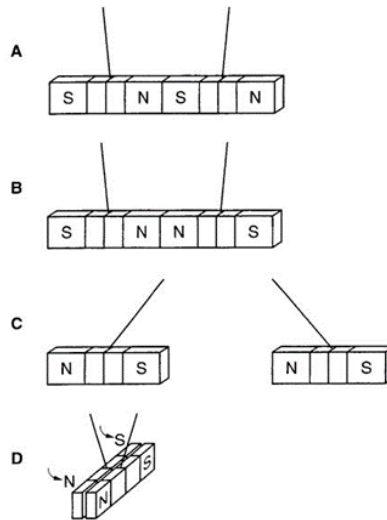
**33. What happens when electrons travel through the filament of a light bulb?**

- A They escape from the filament, glowing brightly.
- B They cause friction which heats the filament and emits light.
- C They collide with fixed atoms in the filament causing them to vibrate, get hot and emit light.
- D They carry heat from the battery to light the filament.

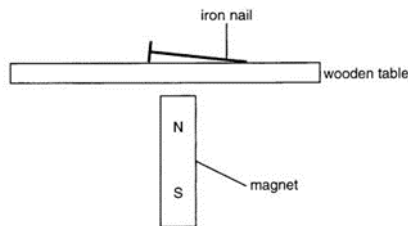
**34. Which one of these pictures is a circuit diagram?**



35. Two small bar magnets are suspended by threads 10 cm apart. Which one of these pictures shows how they will come to rest?



36. When the magnet below is moved from side to side, the nail moves with it.



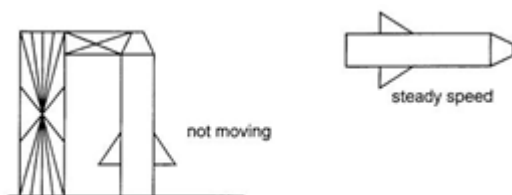
This happens because:

- A Particles in the nail vibrate causing it to move.
  - B The table transmits the magnetic force.
  - C The nail uses up some of the magnetism in the magnet.
  - D Magnetic force acts through the table.
37. A weightlifter lifts a bar.

Which one of these statements is correct?

- A The weightlifter uses energy to exert a force on the bar.
- B The force of the bar uses up the weight-lifter's energy.
- C The weightlifter uses force to exert energy on the bar.
- D The energy in the bar uses up the weight-lifter's force.

38. Which of the following is a fuel which can be used to generate electricity?
- A Oil
  - B Solar energy
  - C Magnetism
  - D Water
39. Which of the following is not an example of an energy transfer?
- A A book resting on a table
  - B A candle burning
  - C A person walking up stairs
  - D A radio playing
40. What happens to the energy which someone puts into riding a bicycle?
- A It is used up and destroyed
  - B It is all transferred into movement energy
  - C It is transferred into movement and other forms of energy
  - D Some of it is destroyed and the rest is stored in the bicycle
41. The diagrams show a space shuttle on its launch pad and then moving through space in a straight line

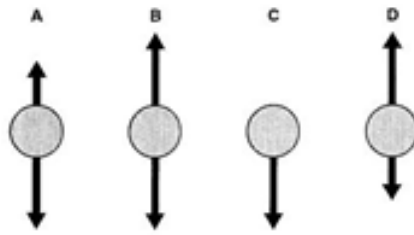


Which pair of statements about the forces acting on the shuttle are true?

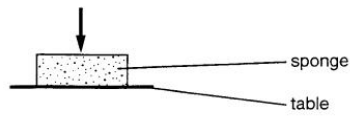
	On the launch pad, forces are:	In space the forces are:
A	Balanced	Balanced
B	Balanced	Unbalanced
C	Unbalanced	Balanced
D	Unbalanced	Unbalanced

42. A child drops a ball

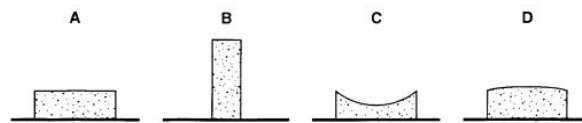
What forces are acting on the ball after it leaves their hand?



43. A large downward force is applied to this sponge



What will be the new shape of the sponge as the force is applied?



44. The engine of a moving boat is turned off. Which two forces cause the boat to slow down and stop?

- A Air resistance and weight resistance
- B Air resistance and water resistance
- C Upthrust and water resistance
- D Weight resistance and water resistance

45. A person pushes a pram at a steady speed along a level pavement. Why do they need to keep pushing just to keep the speed constant?

- A To balance air resistance and upthrust
- B To balance air resistance and weight
- C To balance friction and air resistance
- D To balance friction and weight

**46. A car will move away more easily from a stationary position on a dry road rather than on a wet road.**

**This is because there is:**

- A Less friction between the tyres and the road surface when it is dry
- B Greater friction between the tyres and the road surface when it is dry
- C No friction between the tyres and the road surface when it is wet
- D Greater friction between the tyres and the road surface when it is wet

**47. Forces are measured in:**

- A Newtons
- B Kilowatts
- C Kilograms
- D Volts

**48. The mass of an object is:**

- A The amount of space it takes up, measured in metres cubed
- B The amount of matter in it, measured in kilograms
- C Its capacity, measured in litres
- D Its density, measured in kilograms per metres cubed

**49. Which pair of statements is correct?**

	<b>Gravitational attraction exists between:</b>	<b>The size of pull:</b>
<b>A</b>	Planets and objects close to them only	Depends on mass of objects
<b>B</b>	Objects which are very close together only	Does not depend on mass of objects
<b>C</b>	Earth and objects near its surface	Does not depend on mass of objects or the distance they are apart
<b>D</b>	All objects of any mass	Depends on mass of objects and the distance they are apart

**50. Why does a brick on the Earth have weight?**

- A** Air pressure pushes it towards the centre of the Earth
- B** Air pressure pushes it towards the Moon
- C** Gravitational force attracts it towards the centre of the Earth
- D** Gravitational force pushes it away from the centre of the Earth

51. A piece of rock is brought back to Earth from the Moon. What happens to its mass and the amount of matter it contains?

	Mass	Amount of matter
A	Decreases	Decreases
B	Decreases	Stays the same
C	Stays the same	Stays the same
D	Stays the same	Decreases

52. Why does an object weigh less on the Moon than it does on the Earth?

- A There is no gravitational force on the Moon
- B There is less gravitational force on the Moon
- C The object has less mass on the Moon
- D The Moon is more massive than the Earth

53. An astronaut standing on the Moon dropped a hammer and a feather together from the same height. There is no air resistance on the Moon. What happened?

- A The hammer landed first
- B The hammer and the feather landed at the same time
- C The hammer and the feather did not move
- D The feather landed first

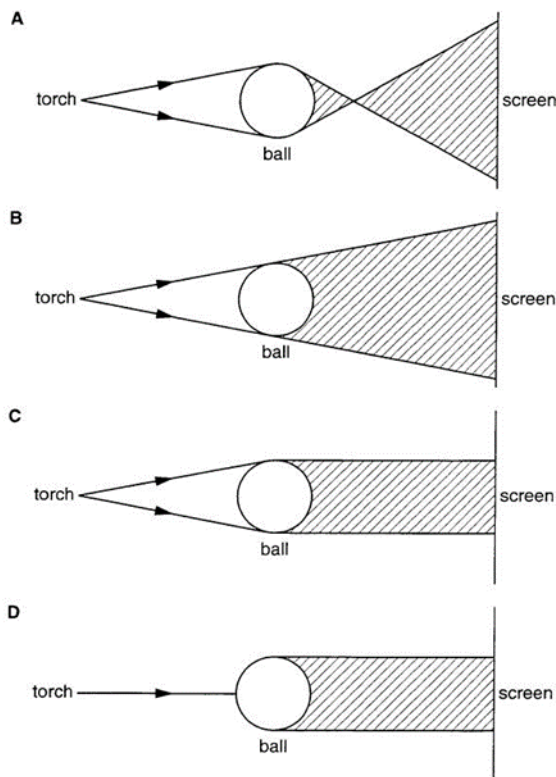
54. Two cars are advertised for sale. The saloon car can go from nought to sixty mph in 12.5 seconds. The sports car can go from nought to sixty mph in 8.1 seconds

What does this tell us about the two cars?

- A The saloon car is faster than the sports car
- B The sports car is faster than the saloon car
- C The saloon car has better acceleration than the sports car
- D The sports car has better acceleration than the saloon car

55. A torch shines on a screen. A solid ball is put in the way.

Which diagram shows how the shadow is formed?



56. One way to show that sunlight contains light of different wavelengths would be by using:

- A A prism to make a 'rainbow.'
- B A mirror to make a reflection.
- C A light meter to measure brightness.
- D A hand lens to form an image



**57. Mirrors are able to form a clear image because light is:**

- A transmitted from the mirror
- B Absorbed by the mirror
- C Reflected by the mirror
- D Scattered by the mirror

**58. A green T-shirt looks green when viewed in white light because:**

- A It absorbs green light only
- B It scatters green light, but absorbs other colours
- C No light is scattered
- D It scatters all the colour in white light

**59. We are able to see a book because:**

- A light is scattered by the book and enters our eyes
- B Our eyes reflect light from the book
- C Light is absorbed by the book
- D The book transmits light rays to our eyes

**60. All sounds are produced by something:**

- A Compressing
- B Decompressing
- C Vibrating
- D Percussing

**61. If we alter the frequency of a sound we change its:**

- A Loudness
- B Pitch
- C Speed
- D Amplitude

**62. Sounds are heard when vibrations from an object:**

- A Enter the ear and travel along tubes into the brain
- B Echo close to the eardrums causing impulses to be carried by nerves to the brain
- C Cause the eardrums to vibrate and impulses to be carried by nerves to the brain
- D Are reflected by the eardrums causing impulses to be carried by nerves to the brain

**63. Which of the following statements about the Sun is correct?**

- A It is the largest star in our galaxy and is at the centre of the Milky Way
- B It is the nearest star to the Earth and it is the centre of our Solar System.
- C It is the only star in our galaxy and is part of the Solar System
- D It is the largest star in our galaxy and orbits the Earth once every 24 hours

**64. The planets, in order of distance from the Sun are:**

- A Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune
- B Earth, Mercury, Venus, Saturn, Mars, Jupiter, Uranus and Neptune
- C Mercury, Mars, Jupiter, Earth, Saturn, Neptune, and Venus
- D Venus, Earth, Mercury, Mars, Saturn, Jupiter, Uranus and Neptune

**65. At different times of the month the Moon looks a different shape.**

**This is because:**

- A The Earth casts a shadow on the Moon
- B Clouds hide part of the Moon
- C The Moon passes behind a planet
- D Half the Moon is lit by the Sun but we see it from a different angle

**66. It is colder during the winter because:**

- A The solar cycle makes the Sun vary in brightness during the year
- B There are more clouds during the winter, which shield the Sun's heat
- C the Earth is further from the Sun during the winter
- D The tilt of the Earth means that the Sun is lower in the sky in winter

**67. Day and night occur because the:**

- A Sun rotates
- B Earth rotates
- C Sun goes round the Earth
- D Earth goes round the Sun

**THE END**