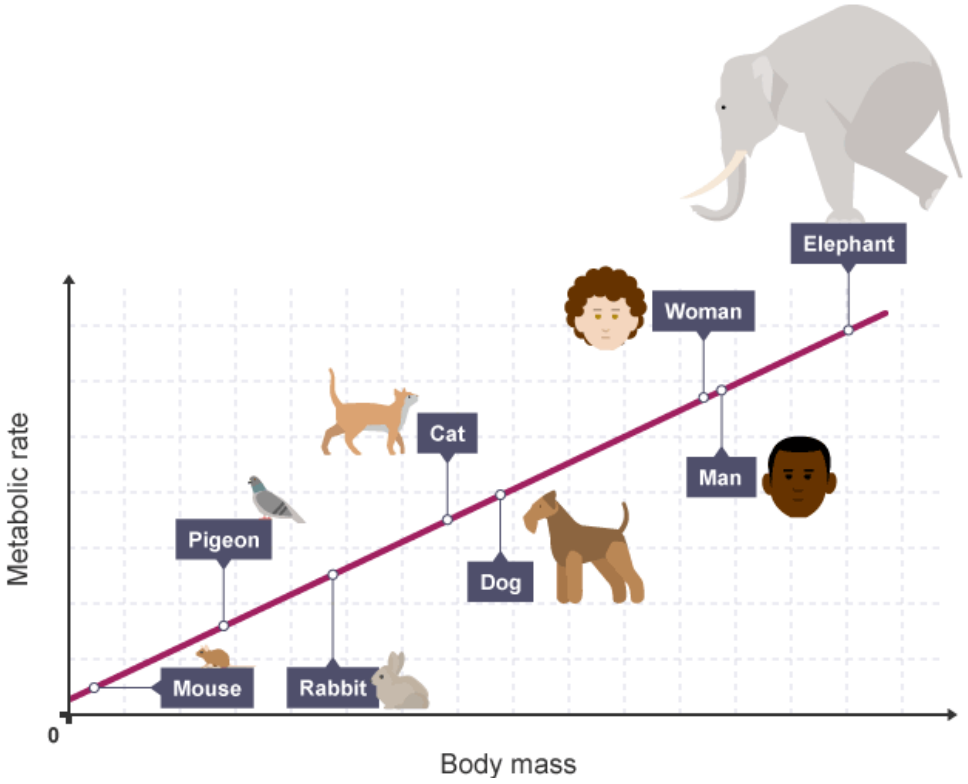
Biology B1 Quiz

Leah Broderick

The Pill – An oral contraceptive that before contained high levels of oestrogen and progesterone. The oestrogen in the pill caused side effects e.g. blood clots, so now it contains lower doses of oestrogen to reduce side effects	**The Theory of Evolution** – More than 3 billion years ago, life on Earth began as simple organisms from which all the more complex organisms evolved (rather than just popping into existence)	**Malnourishment**– Lack of a balanced diet.
Tropism– Growth of a plant in response to a stimulus (e.g. Light, Gravity, Moisture)	**Phototropism**– Growth of a plant in response to light	**Geotropism or Gravitropism**– Growth in a plant in response to gravity
Auxin– A plant hormone that controls growth near the tips of shoots and roots	**Performance enhancing drugs**– Drugs that athletes take to improve their performance in sport. These can have negative health effects (e.g. steroids can cause high blood pressure). Some of these are banned by law, some are prescription-only and all are banned by sporting bodies	**Anabolic Steroids**– Improve the performance of athletes by increasing their muscle size

How does resting metabolic rate vary between people?

- People with a higher proportion of muscle to fat will have a high metabolic rate (muscle needs more energy than fatty tissue)
- Physically bigger people have a higher metabolism (they have more cells and therefore they need more energy to be supplied to each of them)
- Men have a slightly bigger metabolic rate than women (they're slightly bigger and have a larger proportion of muscle)
- People who exercise more have a larger metabolic rate (exercise builds muscle, boosting your metabolic rate)

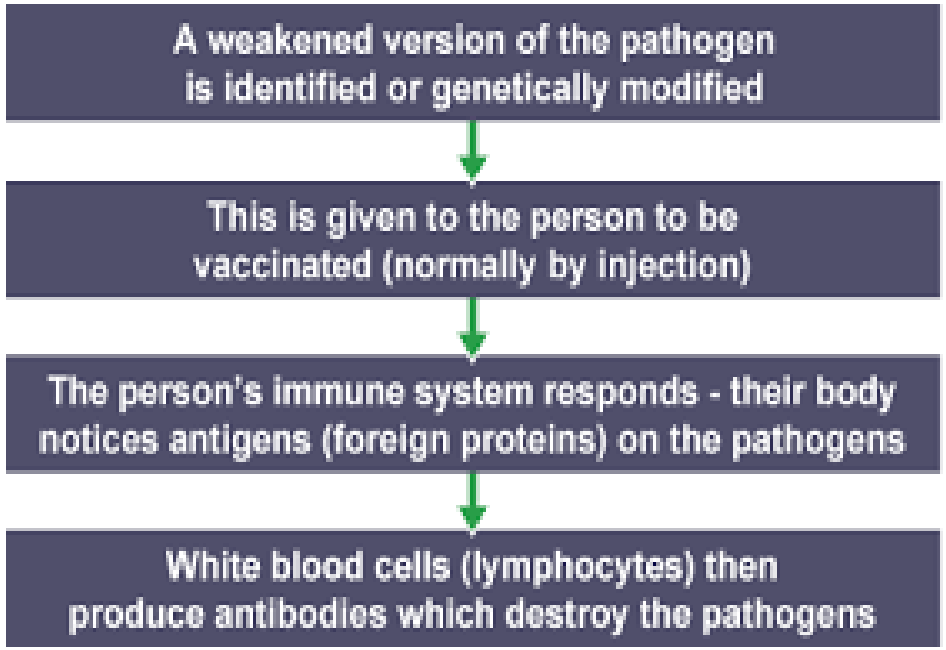


What happens if you eat too much?

- People who eat too much carbohydrate or fat can suffer from obesity (common disorder, being 20% or more over the maximum recommended body mass)
- Hormonal problems can lead to obesity, but it's usually caused by bad diet, overeating or lack of exercise
- Obesity can cause health problems: Arthritis (inflammation of joints), type 2 diabetes (can't control blood sugar level), high blood pressure, heart disease and some types of cancer.
- Too much saturated fat can increase your blood cholesterol levels
- Eating too much salt can cause high blood pressure and heart problems

What is Vaccination?

- Injecting a small amount of dead or inactive microorganisms, which carry antigens, causing your body to produce antibodies to attack them – even though the microorganism is harmless
- If live microorganisms of the same type appear after that, the white blood cells rapidly mass-produce antibodies to kill the pathogen.
- Some vaccinations wear off, therefore booster injections are necessary to increase the level of antibodies again



How can you investigate antibiotics?

- Grow microorganisms in a "culture medium", using Agar jelly containing carbohydrates, minerals, proteins and vitamins needed to grow

1. Hot agar jelly is poured into Petri dishes
2. When the agar has set and cooled, inoculating loops are used to transfer microorganisms to the culture. They then multiply.
3. Paper discs are soaked in different types of antibiotics and placed on the jelly. The antibiotic-resistant bacteria will continue to grow whereas the non-resistant bacteria will die

How are hormones used to reduce fertility in Contraception?

- Oestrogen can be used to prevent the release of an egg if taken every day (level is always high) inhibiting the production of FSH to stop egg development and production for a long time
- Progesterone stimulates the production of thick cervical mucus which prevents sperm reaching an egg

List 2 of the Pros and Cons of taking the Pill

Pros	Cons
• Over 99% effective at preventing pregnancy • Reduces risk of getting some cancers	• Isn't 100% effective – still could get pregnant • Has side effects e.g. headaches, irregular periods and fluid retention • Doesn't protect you from STD

How is body temperature regulated?

- All enzymes work best at 37°C so the body maintains this temperature
- A part of your brain acts as your own personal thermostat – it's sensitive to blood temperature in the brain and receives messages from the skin that provide information about the skin temperature

How is ion content regulated?

- Ions are taken in from food and absorbed into the blood
- It the food contains too much of an ion, excess ions are removed in sweat or the kidneys will remove the excess from the blood and it will excreted in urine

Describe the three main stages of Drug Testing

- Drugs are tested on human cells and tissues in the lab. You can't use human cells and tissues to test drugs that affect whole or multiple bodies (e.g. you can't test a drug for blood pressure on cells as there is no circulatory system)
- Drugs are tested on live animals to test their toxicity, effect, the best dosage (a low dose is given which is gradually increase).
- Then, drugs are tested on human volunteers in a clinical trial (which can be blind or double blind)

What is the difference between a ‘Blind Trial’ and a ‘Double-Blind Trial’?

- In a Blind Trial, the patient doesn’t know whether they’re getting the drug or the placebo
- In a Double-Blind Trial, neither the patient nor the doctor know whether the patient has the drug or the placebo until the results have been gathered

Why are ‘double-blind trials’ carried out?

- The doctors monitoring the patients and analysing the results can’t be subconsciously influenced by their knowledge

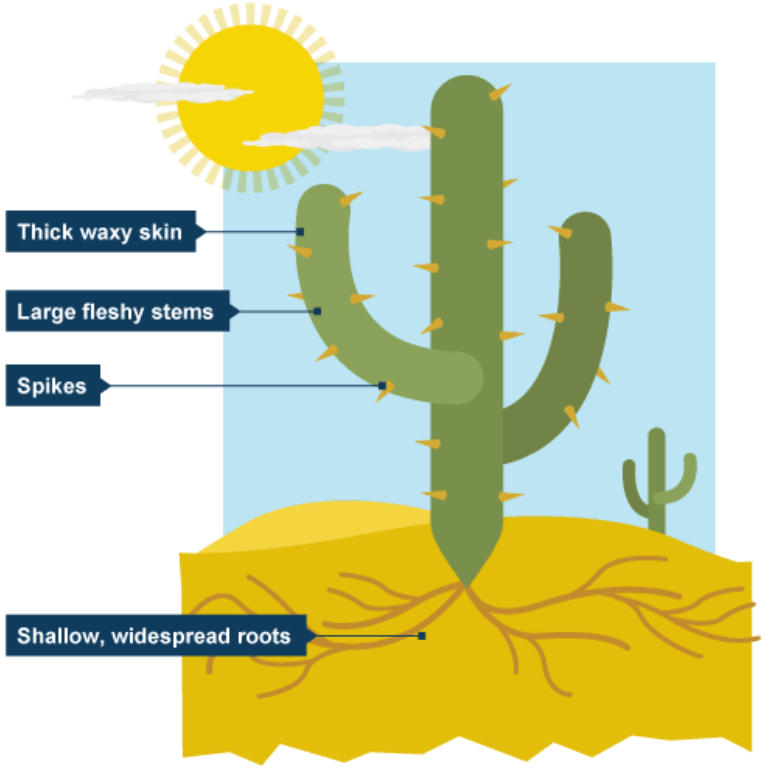
How are illegal drugs categorised?

- Soft drugs and Hard Drugs
- Hard drugs (e.g. heroin) are often believed to be seriously addictive and more harmful

Recreational Drugs

How are desert plants adapted to having little water?

- Small surface area compared to volume – plants lose water vapour from the surface of their leaves. Cacti have spines instead of leaves to reduce water loss.
- Water storage tissues – e.g. cacti store water in their huge stems
- Maximising water absorption – some cacti have shallow but extensive roots to absorb water quickly over a large area when it rains in the desert. Others have deep roots to access underground water.
- Camouflage – sandy colour helps them avoid predators and sneak up on prey.



How are environmental changes measured with living indicators?

- Indicator species are organisms that are very sensitive to changes in their environment, so they can be studied to see the effect of human activities

Give some examples:

- Air pollution can be monitored with some types of lichen that are very sensitive to the concentration of sulfur dioxide in the atmosphere – if there are lots of lichen, the air is clean
- If raw sewage is emptied into a river, the oxygen concentration dissolved into the water will decrease as bacteria use some of it up. Some invertebrate animals like Mayfly larvae are good indicators – if there are lots of Mayfly larvae, the oxygen concentration is high so the water is clean
- Other invertebrate animals are adapted to live in polluted conditions so if you see lots of them, there is lots of water pollution – e.g. rat-tailed maggots, sludgeworms

What is Environmental Variation?

- Environmental variation is when the environment that an organism lives in causes differences between members of the same species
- An example of this is leaf colour in plants.

What is the difference between ‘Sexual’ and ‘Asexual’ Reproduction?

Asexual Reproduction

- Requires one parent
- Involves body cells
- Creates offspring that are genetically identical to the parent (clones)
- Does not result in Genetic Variation

Sexual Reproduction

- Requires two parents
- Involves Gametes (sperm and egg)
- Creates offspring that are not genetically identical to the parents
- Results in Genetic Variation (23 pairs of chromosomes are inherited by the offspring from each parent)

How do Evolutionary Relationships work?

- Species with similar characteristic often share similar genes because they share a recent common ancestor, so they're closely related, often looking alike and living in similar habitats (e.g. Whales and Dolphins)
- Occasionally, genetically different species may look alike (e.g. Dolphins and Sharks - they're both adapted to living in the same habitat and so look similar, but are not closely related and have evolved from different ancestors)
- Evolutionary Trees show common ancestors and relationships between organisms. The more recent the common ancestor, the more closely related the species are.