

THINKING



AMAZING CHEMISTRY

Our bodies make chemical substances for different reasons

Chemistry is the science of looking at different substances and observing how they change and react with one another. Many different chemical hormones and neurotransmitters are at work in our amazing bodies.

Have you ever been really frightened or stressed? When someone is stressed, their heart starts racing, they start sweating, and they start breathing quickly. These reactions in the body cause adrenaline to be released into the bloodstream. Adrenaline helps in stressful situations. It lowers our level of pain, and redirects blood



to our major organs. This causes a short-lived increase in strength and performance. Once the stress is over, adrenaline's effects start to wear off.

Growth hormones are the chemicals responsible for our growth and development. They are released by the pea-sized pituitary gland in the brain. During puberty, growth hormones help change a child's body into an adult's.

Women produce the hormone oestrogen. This helps them develop typical female features. Men make testosterone, which causes them to develop male features.

Serotonin has many different roles in the body: it can help to balance someone's mood, tell their brain when they have eaten enough, and with blood clotting.

Melatonin is made by the pineal gland in the brain. Levels of this hormone rise in the evening so that we can fall asleep and drop in the morning as we wake up.



Endorphins are released when someone is hurt to reduce the amount of pain that they feel. But they also work as 'feel good' chemicals to put us in a good mood.

The body works hard to get all the chemistry right. It is amazing that all this goes on inside the body without us really being aware of it!

What do our body's chemicals do?

These are some of the chemicals that are produced in the body.

Cut out and match the statements correctly.

Adrenaline		A hormone produced in a women's body that makes her develop typical female features.
Growth hormones		A chemical substance produced in the body that causes men to develop the physical features that are typical of males. It is a hormone.
Melatonin		A chemical substance produced in the body that affects moods and the flow of messages through our nerves.
Oestrogen		A chemical produced by the adrenal glands that makes your heart beat faster and gives you more energy when you are frightened, excited, or angry.
Testosterone		A hormone that helps the process of growth. It is produced in the pituitary gland.
Serotonin		A hormone produced in the body that helps balance and manage cycles of sleeping and waking
Endorphins		Substances released in greater amounts when we are hurt or under stress to help our body function and to improve mood.

If these chemicals were drawn as cartoons what might they look like?

Choose one of these chemicals and think about its main purpose. Try to draw features that might reflect this.