

EXPLORING NUCLEAR ENERGY



مؤسسة الإمارات للطاقة النووية
Emirates Nuclear Energy Corporation



شركة براكة الأولى ش.م.م
Barakah One Company PJSC

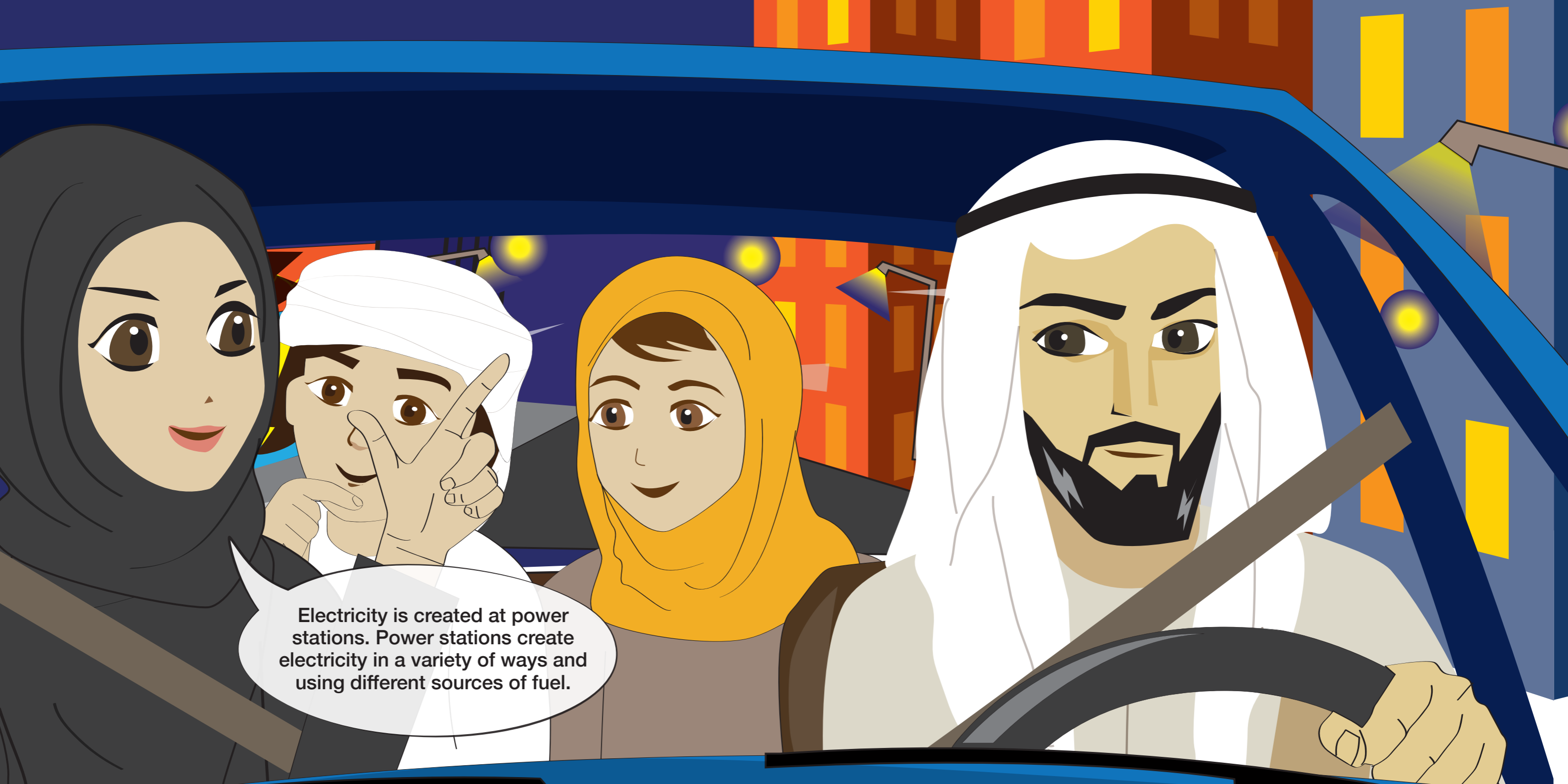


شركة نواة للطاقة
Nawah Energy Company

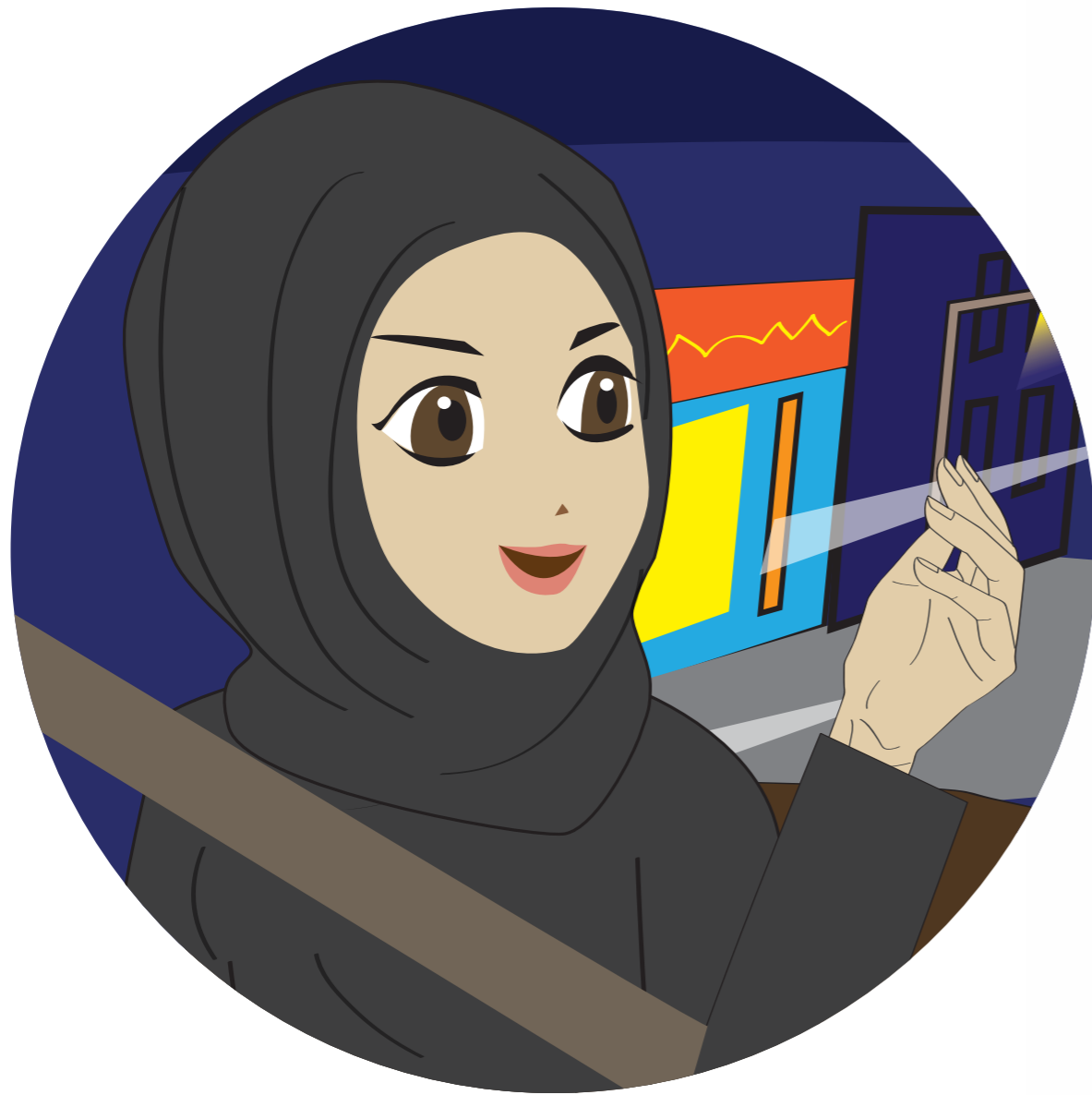




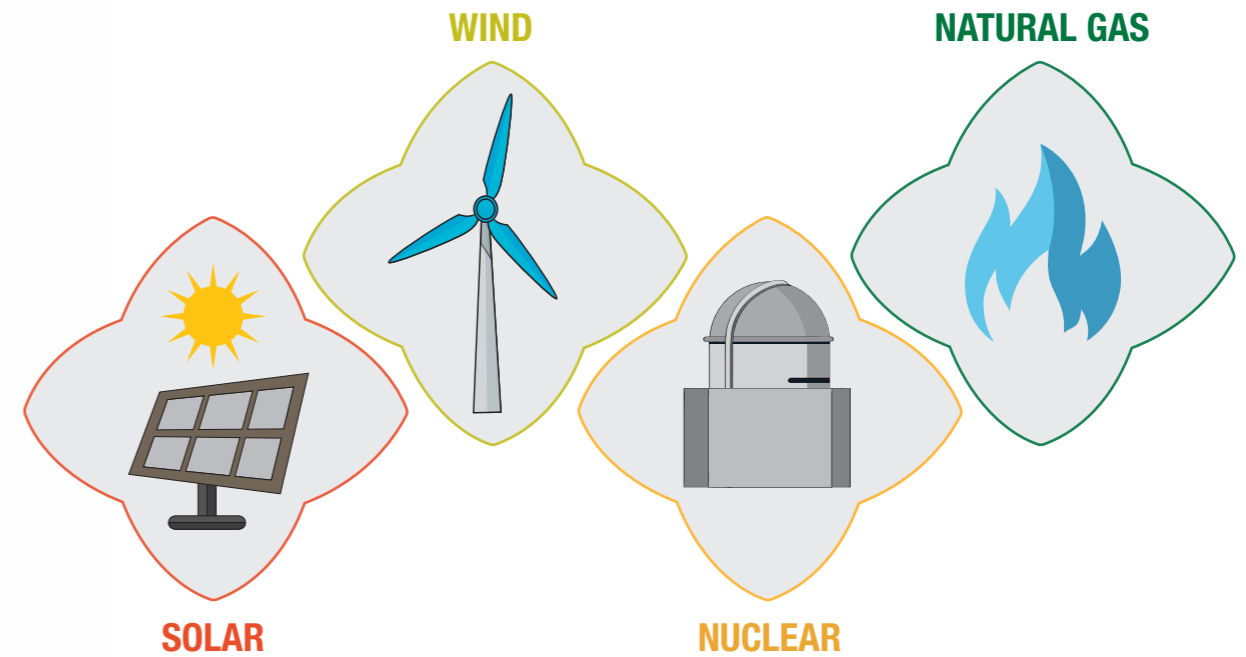
Look at all these signs
and lights! Where does
all of the electricity that
powers them come
from?



Electricity is created at power stations. Power stations create electricity in a variety of ways and using different sources of fuel.

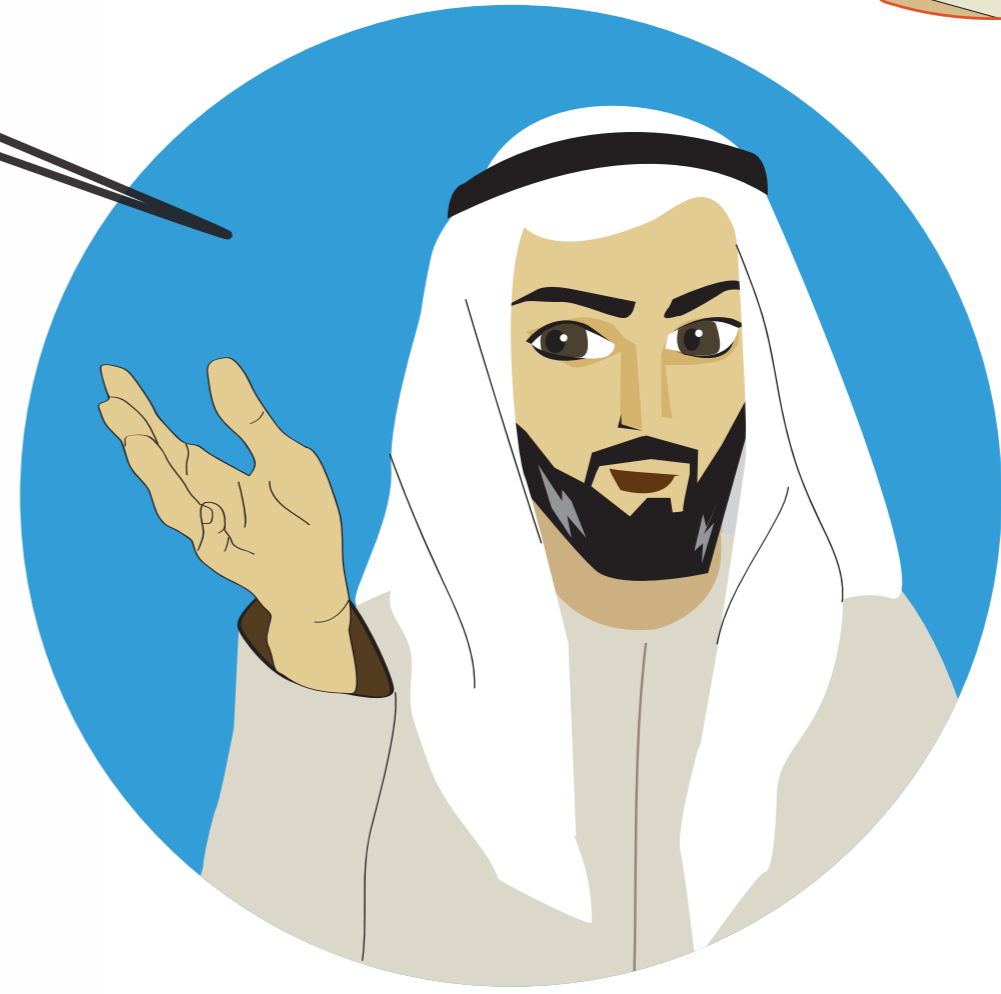
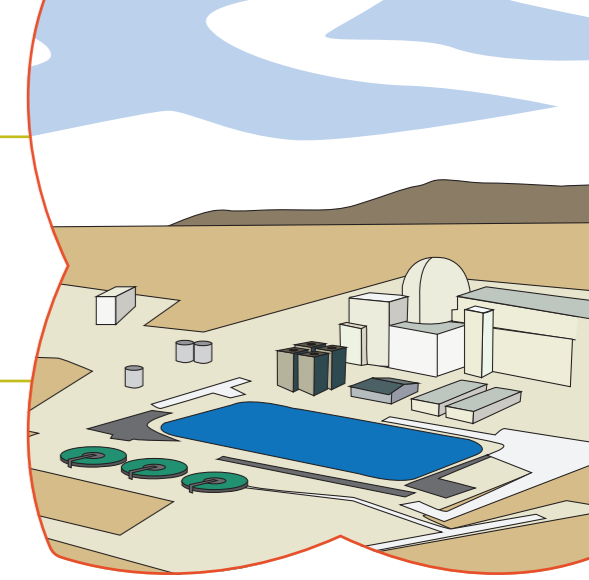


Some plants use oil, coal or natural gas. Others use energy from the sun or wind. Nuclear energy plants use a material called uranium to produce electricity.



Nuclear energy will play an important role in meeting the UAE's growing electricity needs. Unscramble the words below to reveal different sources of energy that produce electricity!

Nuclear energy has been used around the world for decades and generates 11% of the world's electricity. This technology will provide our nation with long-term, reliable electricity.



ilo

nrtalau sga

olac

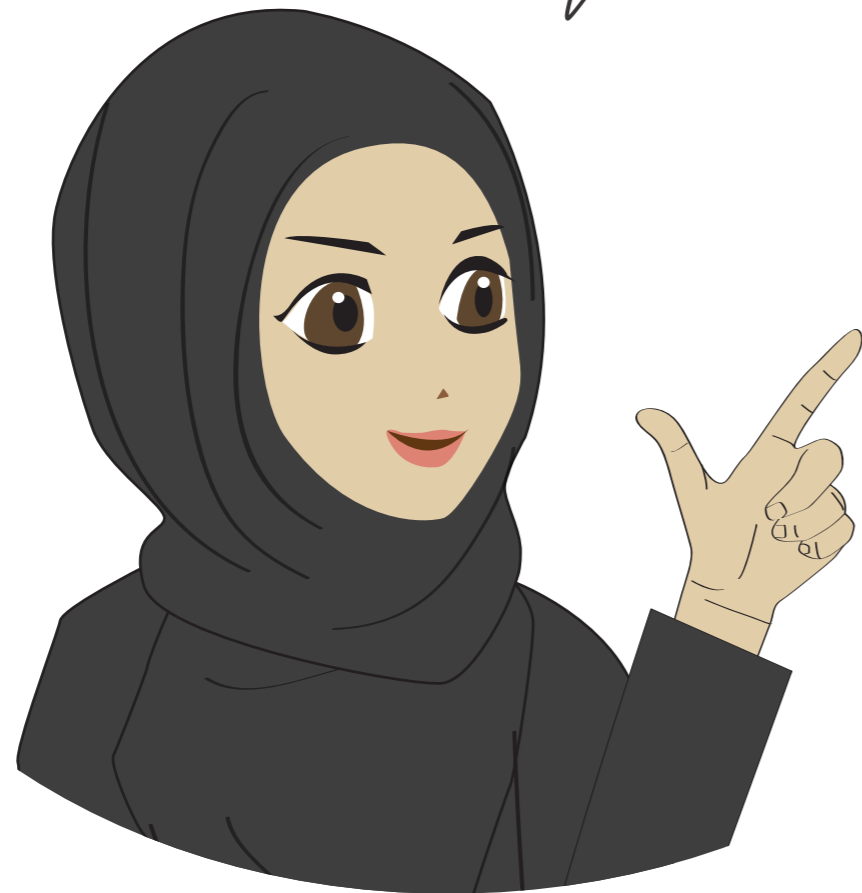
nuecrla

orsal

idwn

oil, natural gas, coal, nuclear, solar, wind

In two minutes, list as many items as you can that use electricity.



.....

.....

.....

.....

.....

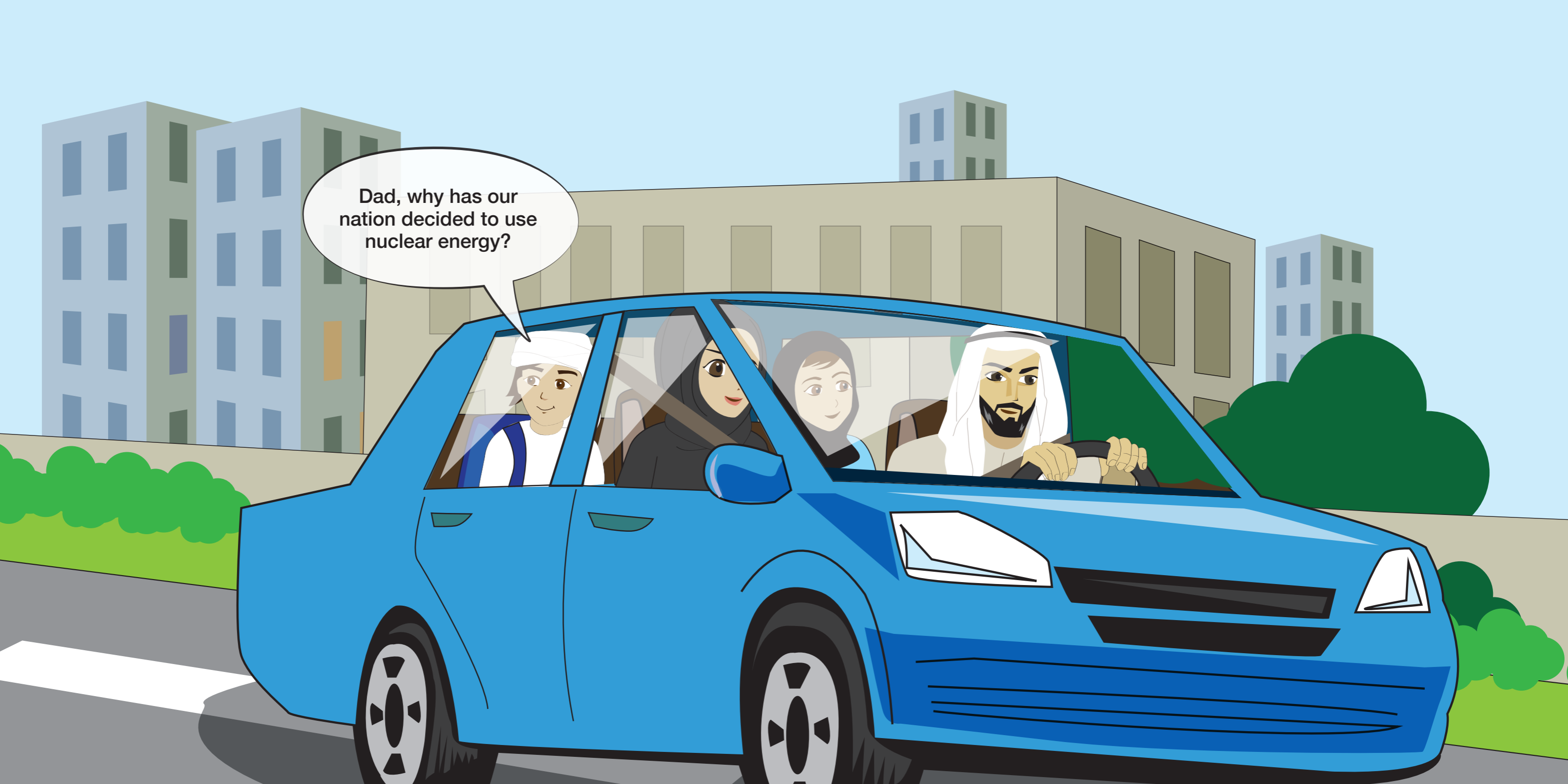
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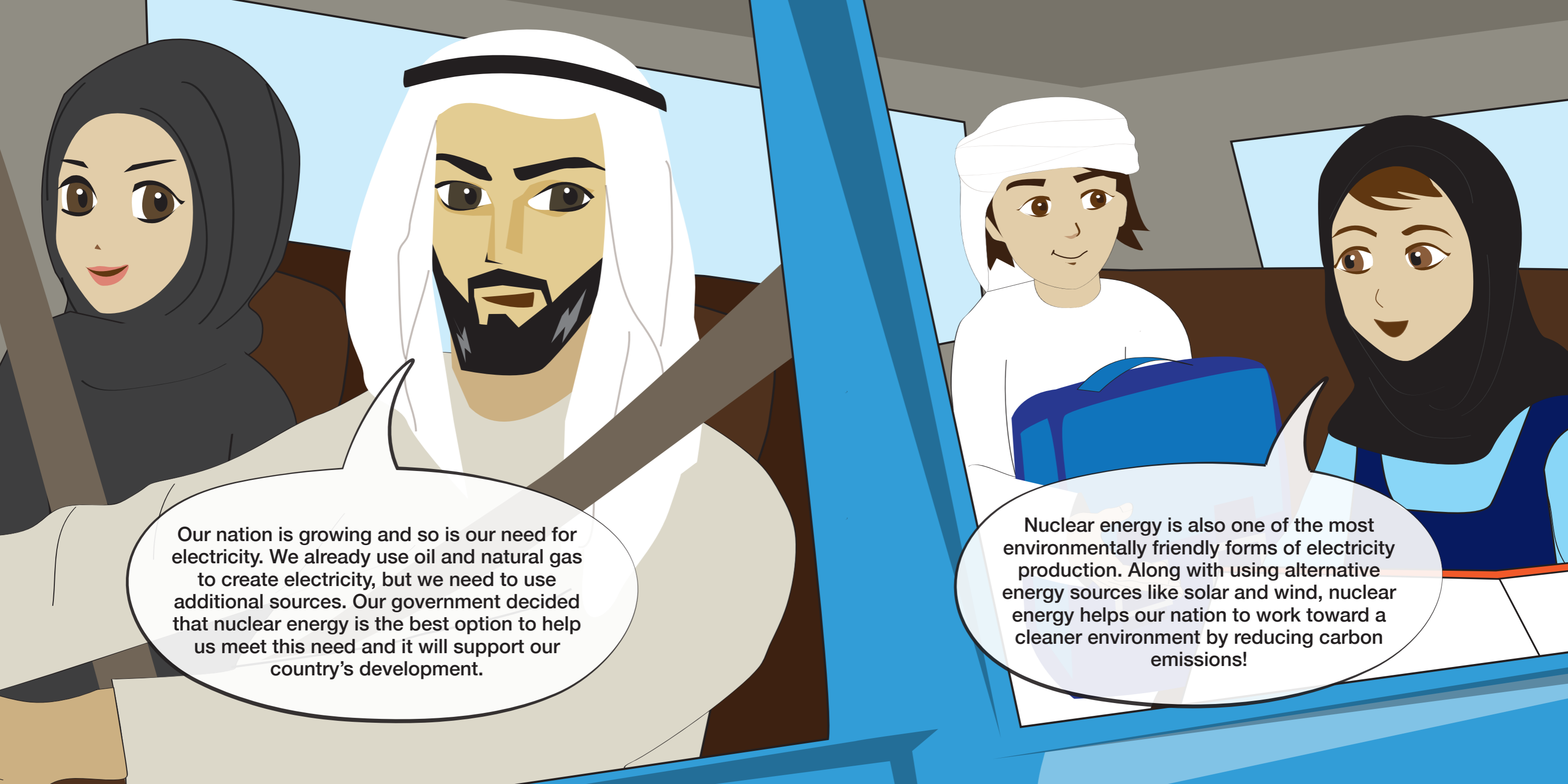
How many did you list?

Saif, don't forget to turn the lights
off before we go to school!
Hurry, Dad is waiting in the car.





Dad, why has our
nation decided to use
nuclear energy?

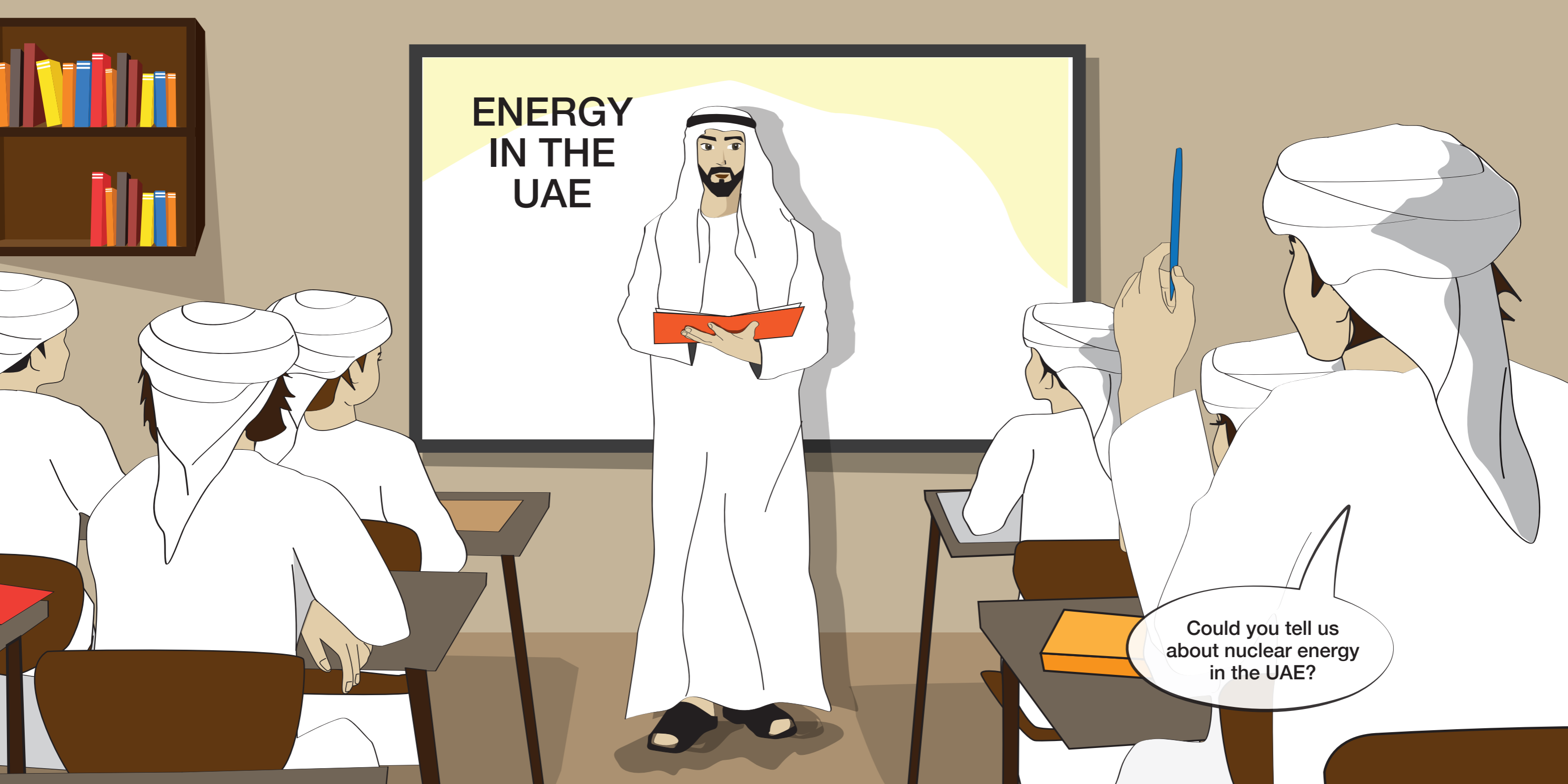


Our nation is growing and so is our need for electricity. We already use oil and natural gas to create electricity, but we need to use additional sources. Our government decided that nuclear energy is the best option to help us meet this need and it will support our country's development.

Nuclear energy is also one of the most environmentally friendly forms of electricity production. Along with using alternative energy sources like solar and wind, nuclear energy helps our nation to work toward a cleaner environment by reducing carbon emissions!



I can't wait to learn more about
nuclear energy at school today!
Bye Mom, bye Dad!



ENERGY IN THE UAE

Could you tell us
about nuclear energy
in the UAE?

Barakah Nuclear Energy Plant



ABU DHABI

Ras Al-Khaimah
Umm al-Quwain
Ajman
Sharjah
Dubai
Fujairah

Great question, Saif. In the UAE, the Emirates Nuclear Energy Corporation, (ENEC), is working to build four nuclear energy plants. The site for this plant is at Barakah, which is in the western region of the Emirate of Abu Dhabi known as 'Al Dhafra', near the city of Ruwais.



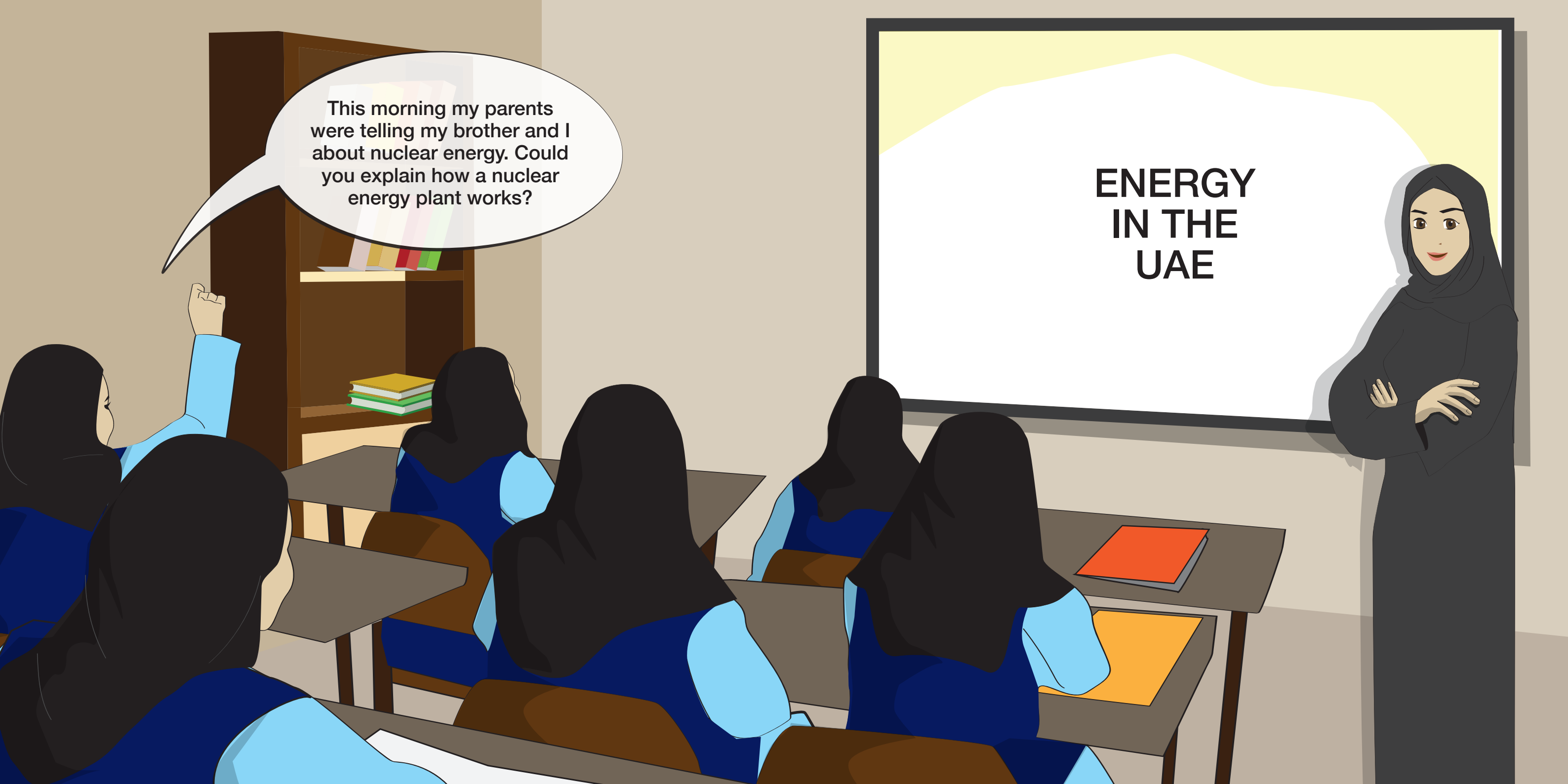
Help me find the 10 words listed below in this nuclear energy wordsearch!

N U C L E A R V H D B K J E
B V S C D B N B A J S C F S
E B T L D U F A E L E R G O
N J S E N V I R O N M E N T
E D B A C J B A E E H D N S
R E S N F V S K E N E A G Y
G M H S D E L A O U L E V H
Y A L T N D G H K P E Y G E
U N Y V U R E L I A B L E C
G D B E L E C T R I C I T Y

NUCLEAR, PLANT, BARAKAH, ENERGY, ELECTRICITY, DEMAND,
CLEAN, RELIABLE, SAFE, ENVIRONMENT

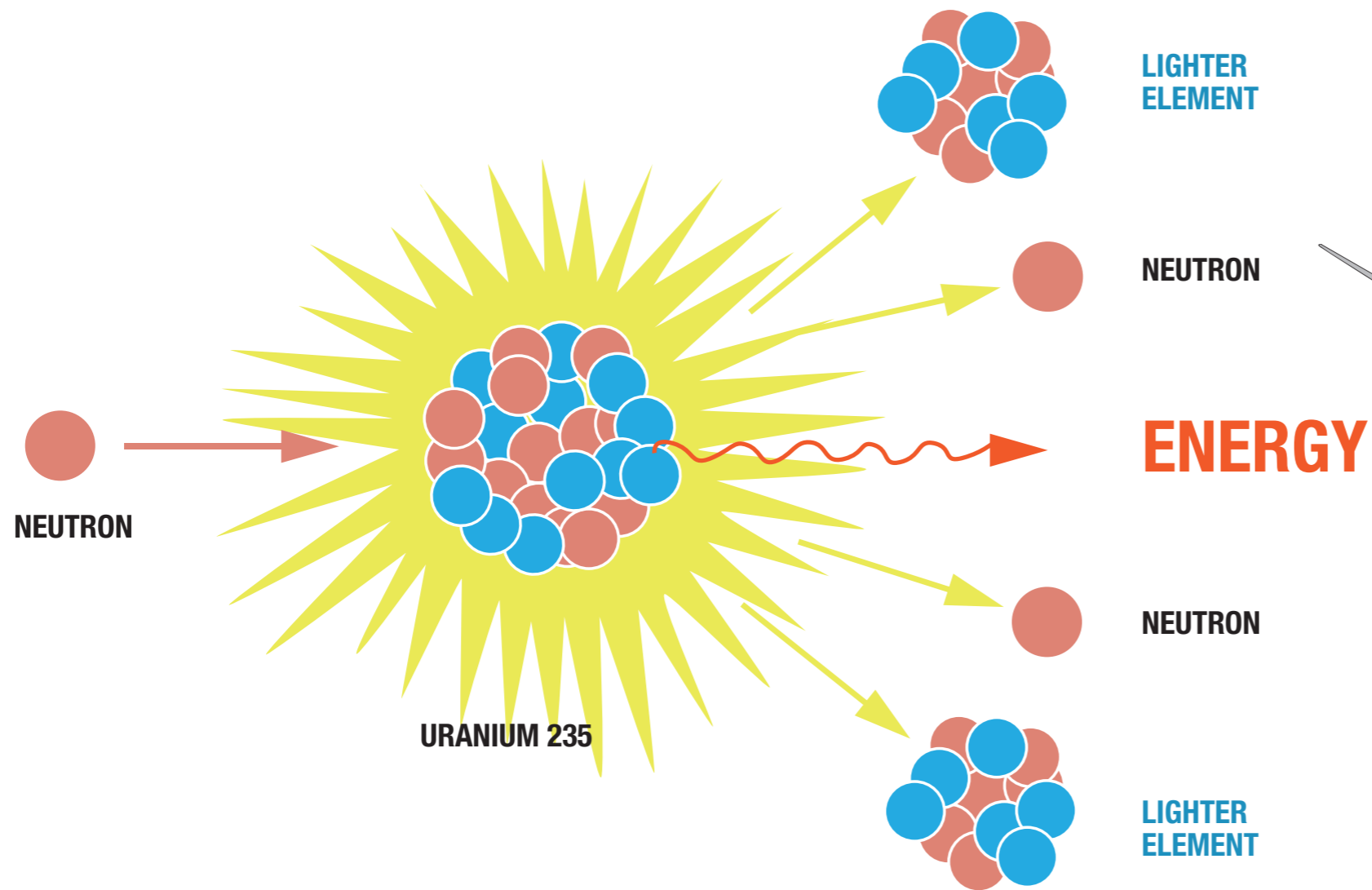
Did you find them all?

NUCLEAR
V H D B K J E
B V S C D B N B A J S C F S
E B T L D U F A E L E R G O
N J S E N V I R O N M E N T
E D B A C J B A E E H D N S
R E S N F V S K E N E A G Y
G M H S D E L A O U L E V H
Y A L T N D G H K P E Y G E
U N Y V U R E L I A B L E C
G D B E L E C T R I C I T Y

An illustration of a classroom. A female teacher in a black hijab and dress stands on the right, facing a group of female students. The students, also in hijabs and blue dresses, are seated at grey desks. One student in the foreground on the left has her hand raised. A speech bubble from this student contains text about nuclear energy. In the background, there is a bookshelf with books and a large whiteboard with the title 'ENERGY IN THE UAE' and a graphic of a mountain under a yellow sky.

This morning my parents were telling my brother and I about nuclear energy. Could you explain how a nuclear energy plant works?

ENERGY IN THE UAE

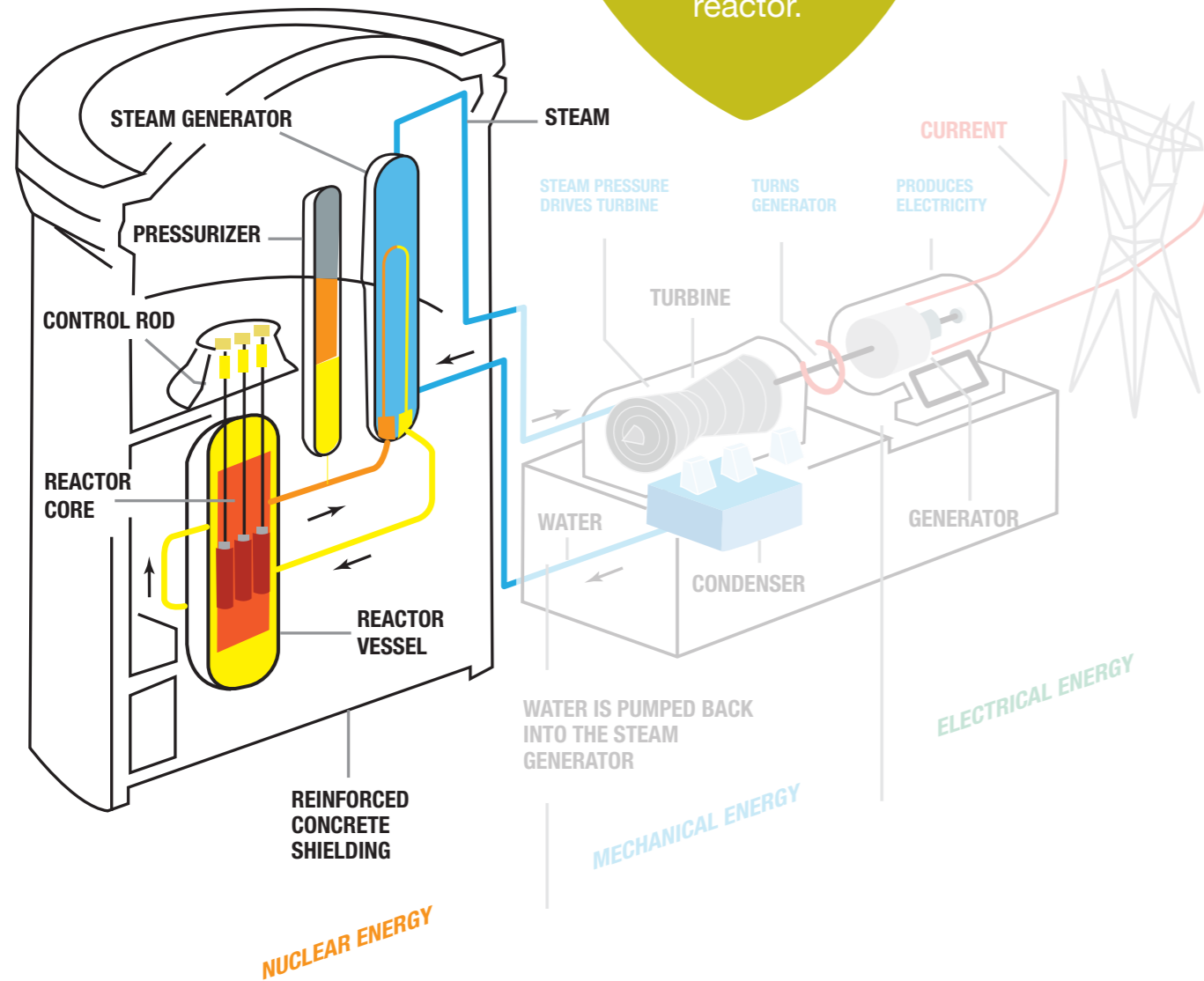


The process of creating electricity using nuclear energy starts with atoms of uranium. Uranium is a naturally occurring element found in the Earth's crust.

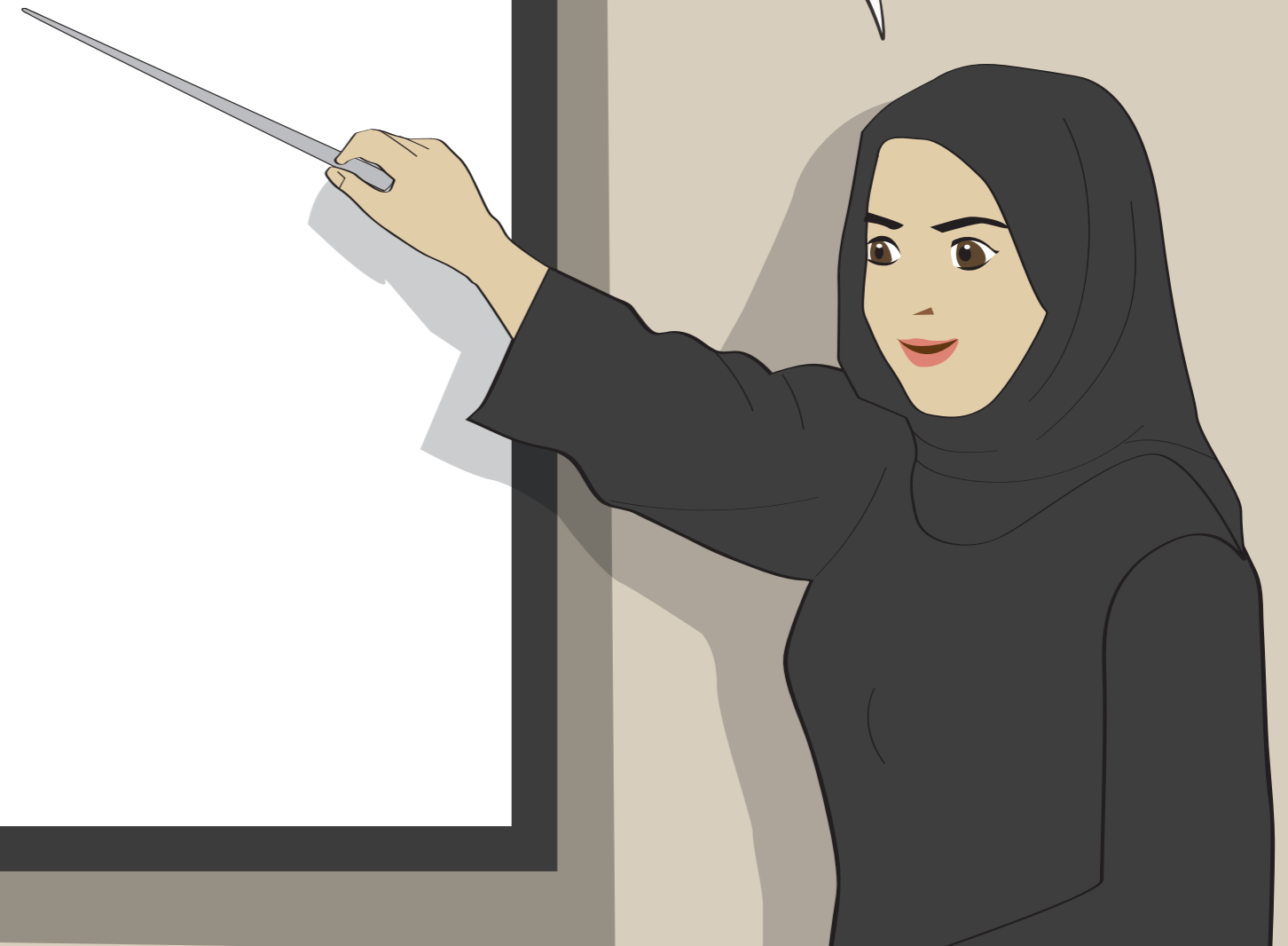
It can undergo fission – the process of splitting an atom. During the process of fission, the uranium atom splits into other smaller elements. This happens over and over again, known as a chain reaction.

There are a number of different kinds of reactors used in nuclear energy plants around the world. Barakah Nuclear Energy Plant uses a pressurized water reactor.

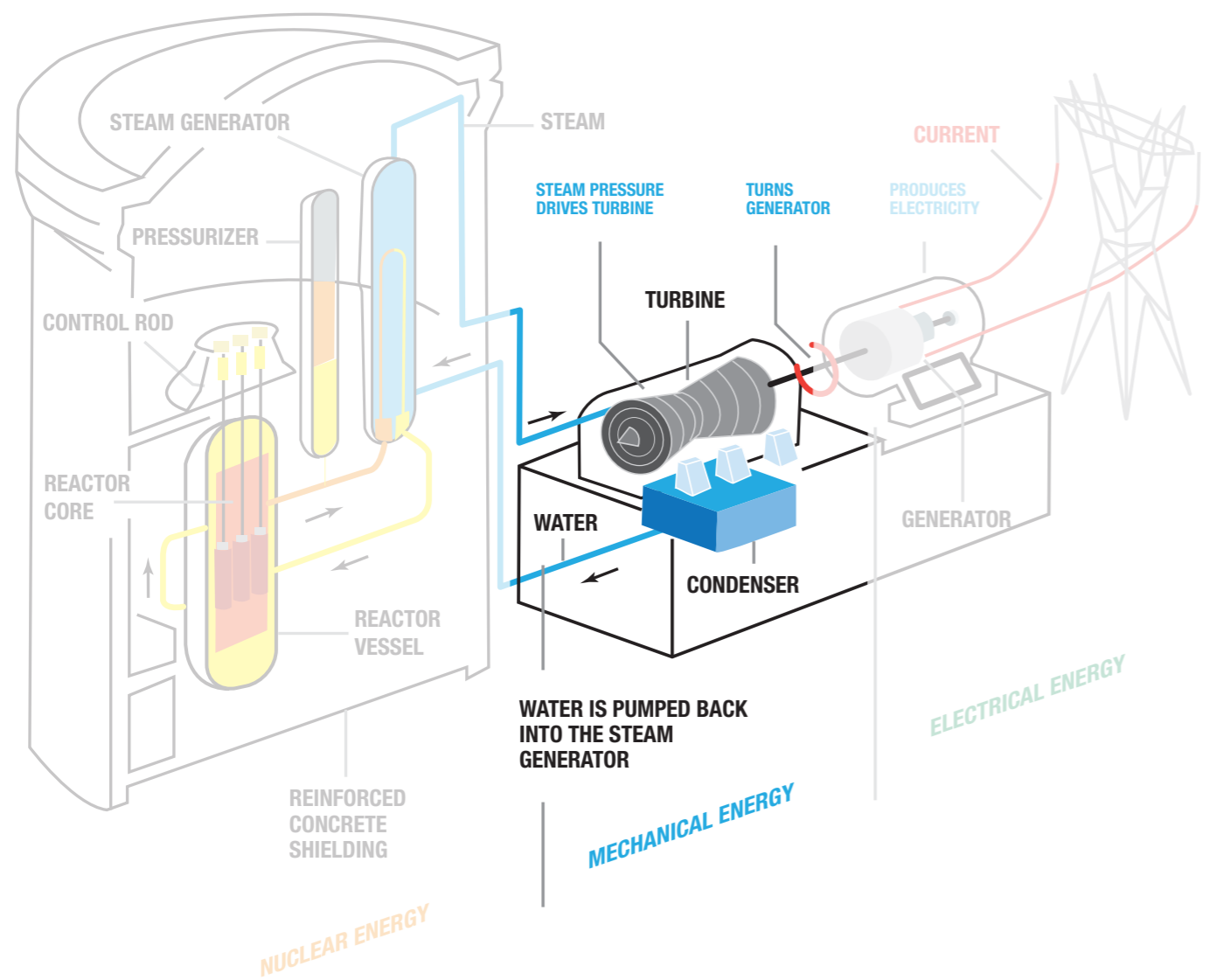
PRESSURIZED WATER REACTOR



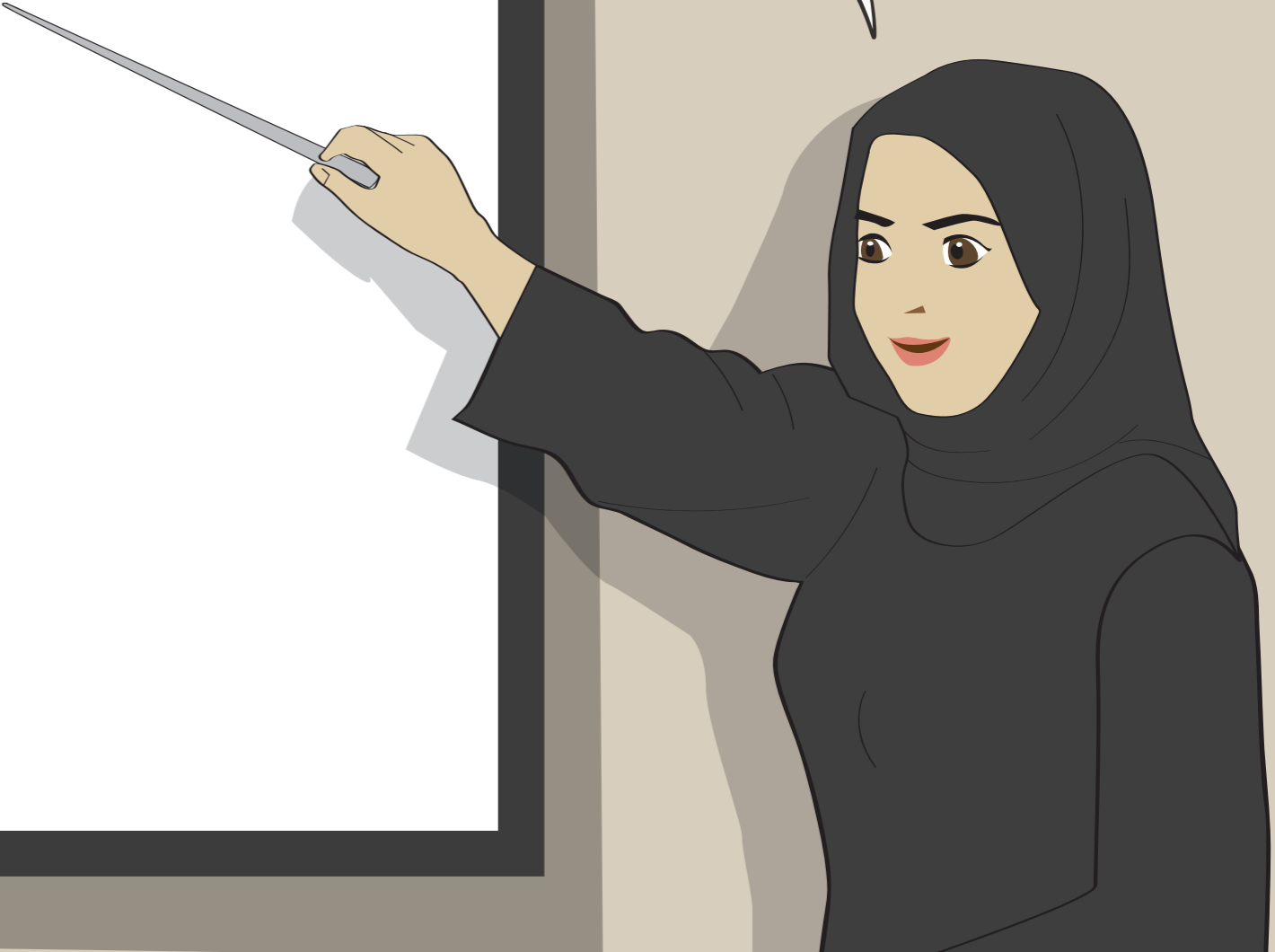
In a nuclear energy plant, this fission process occurs in the nuclear reactor vessel. The heat that is generated by the chain reaction is used to turn water into steam.



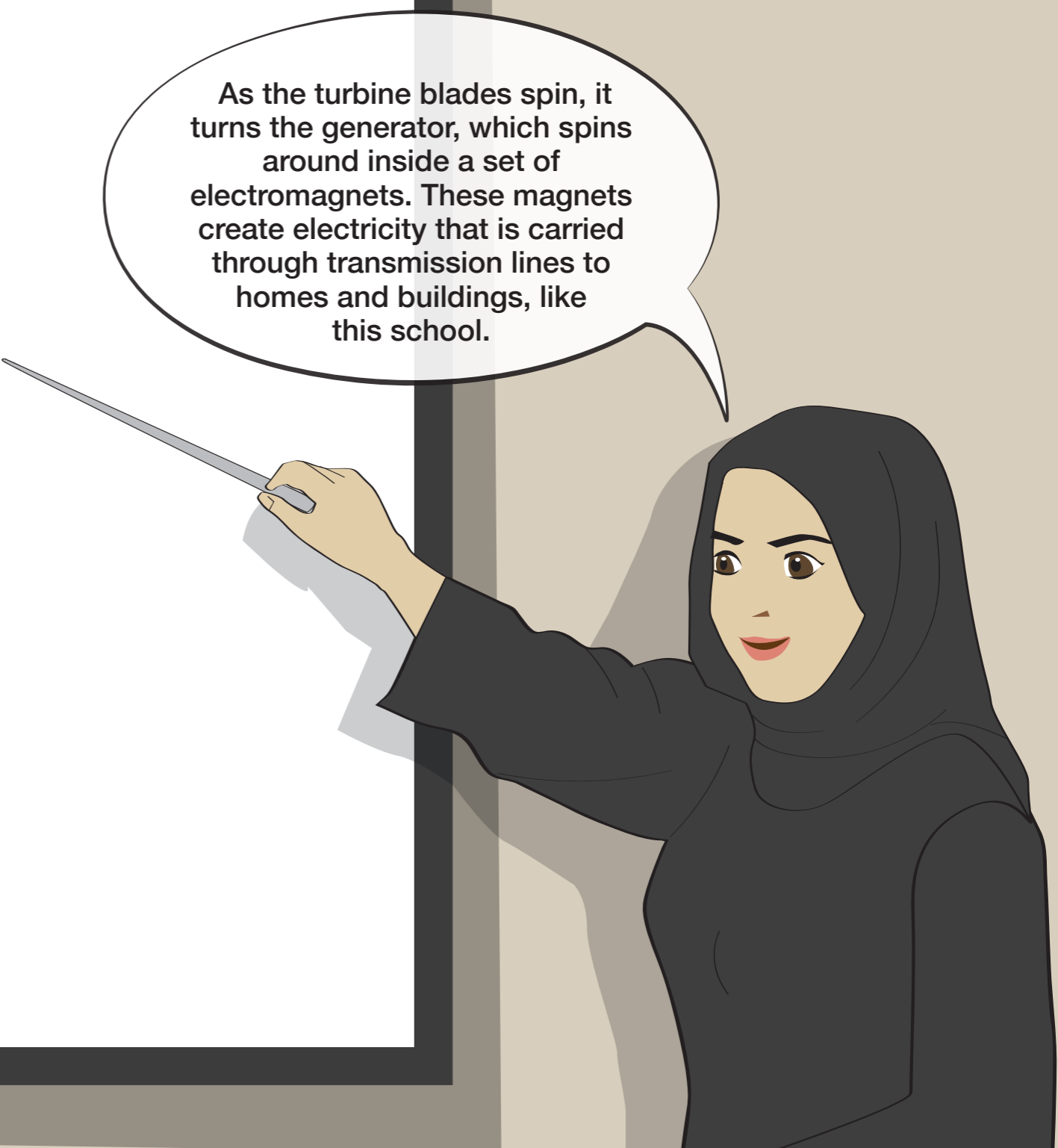
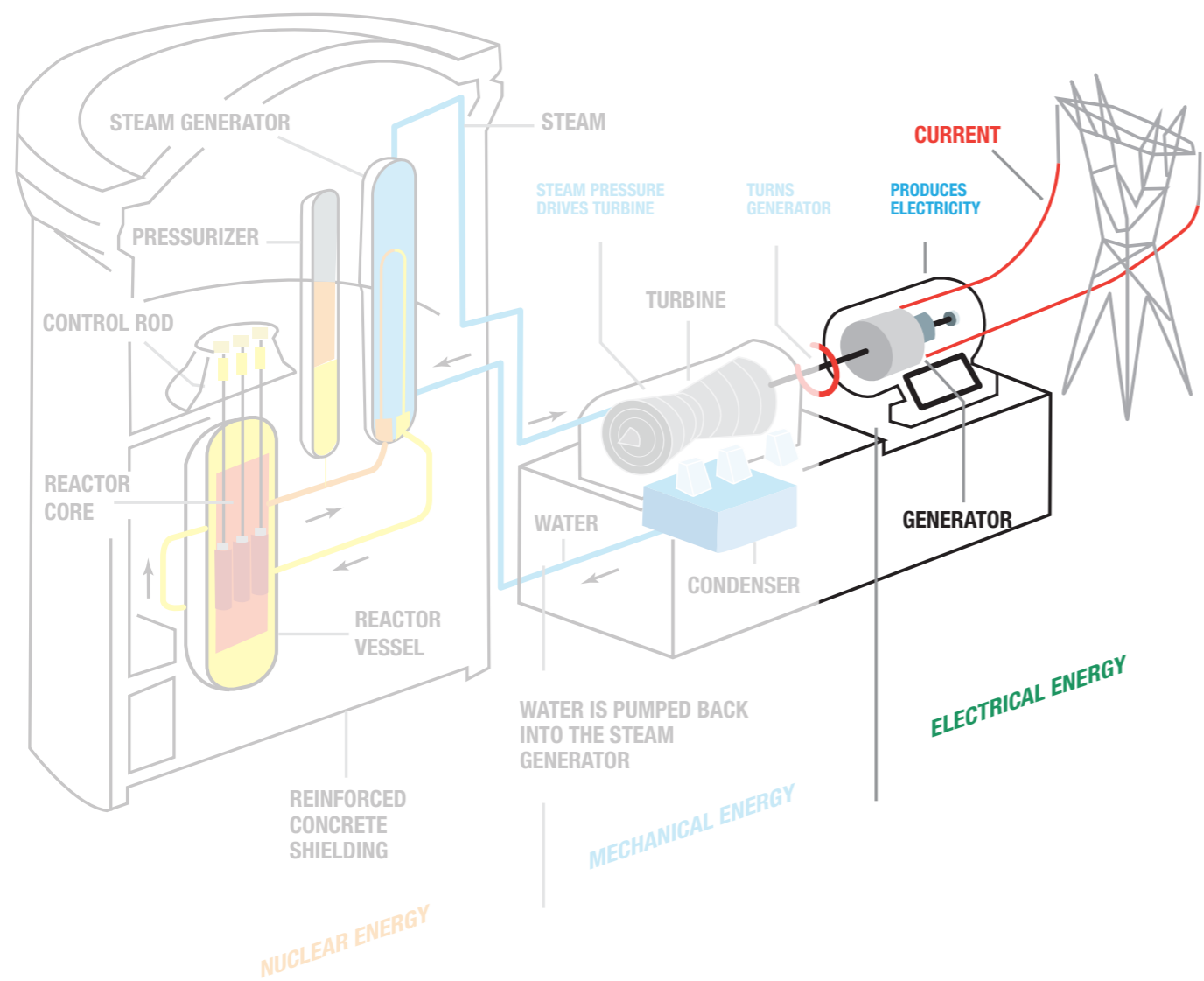
PRESSURIZED WATER REACTOR



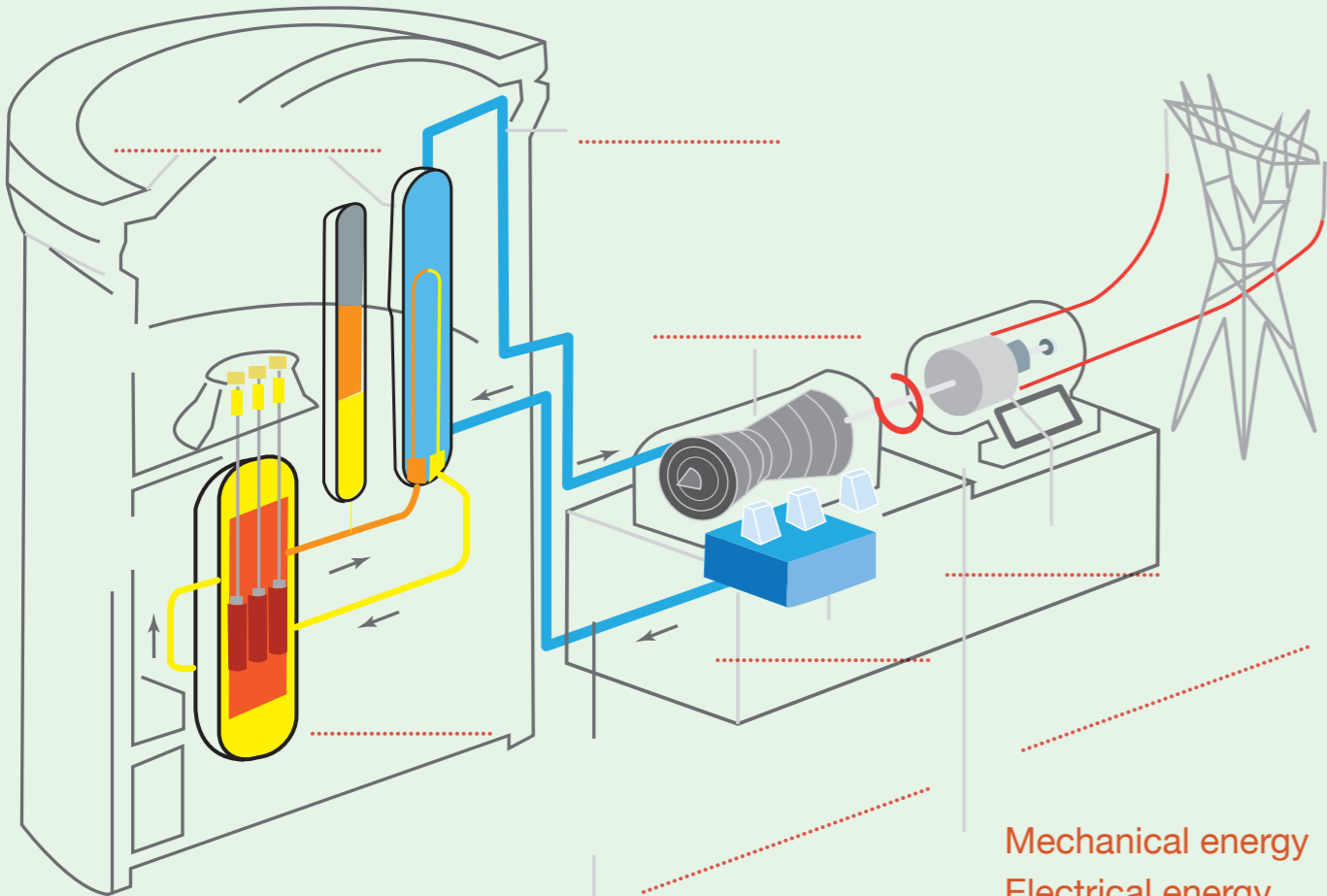
The steam then travels through pipes to a turbine, spinning the turbine's blades like a pinwheel. The turbine blades are connected to a shaft, which is connected to a generator.



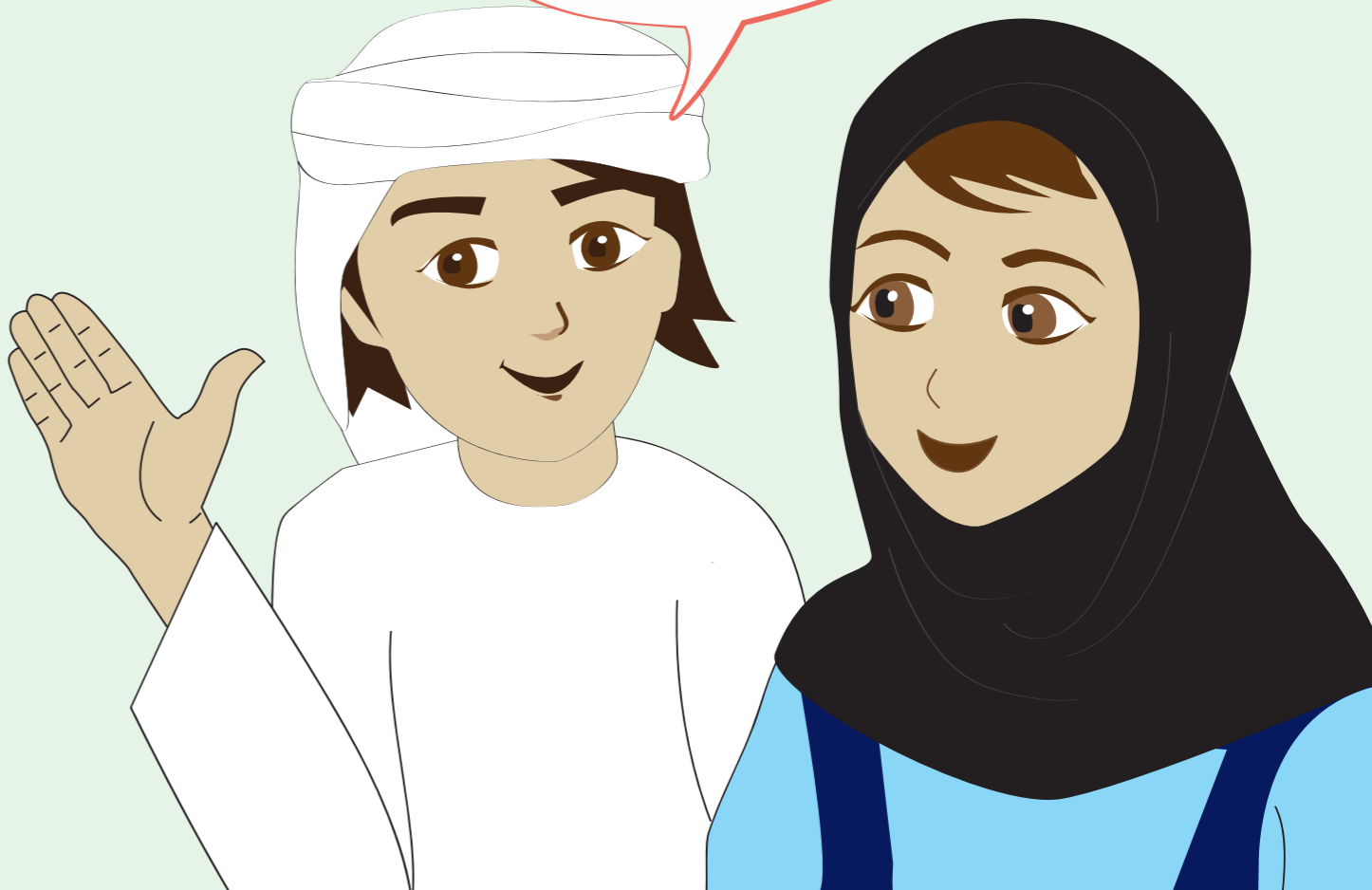
PRESSURIZED WATER REACTOR



PRESSURIZED WATER REACTOR



- Mechanical energy
- Electrical energy
- Nuclear energy
- Condenser
- Reactor vessel
- Steam generator
- Turbine
- Generator
- Steam



I learned about the parts of a nuclear energy plant today!

Wow! Can you use the words below to label the parts of a nuclear energy plant on the picture?

Fill in the blanks using the list of words below!

Barakah

electromagnets

fission

growing

natural gas

steam

transmission lines

turbine

uranium

1) The UAE is building four nuclear energy plants because demand for electricity is

2) In the UAE, we are already using oil and to produce electricity.

3) The UAE is building a nuclear energy plant in

4) is the process of splitting atoms.

5) A nuclear reactor creates heat that turns water into

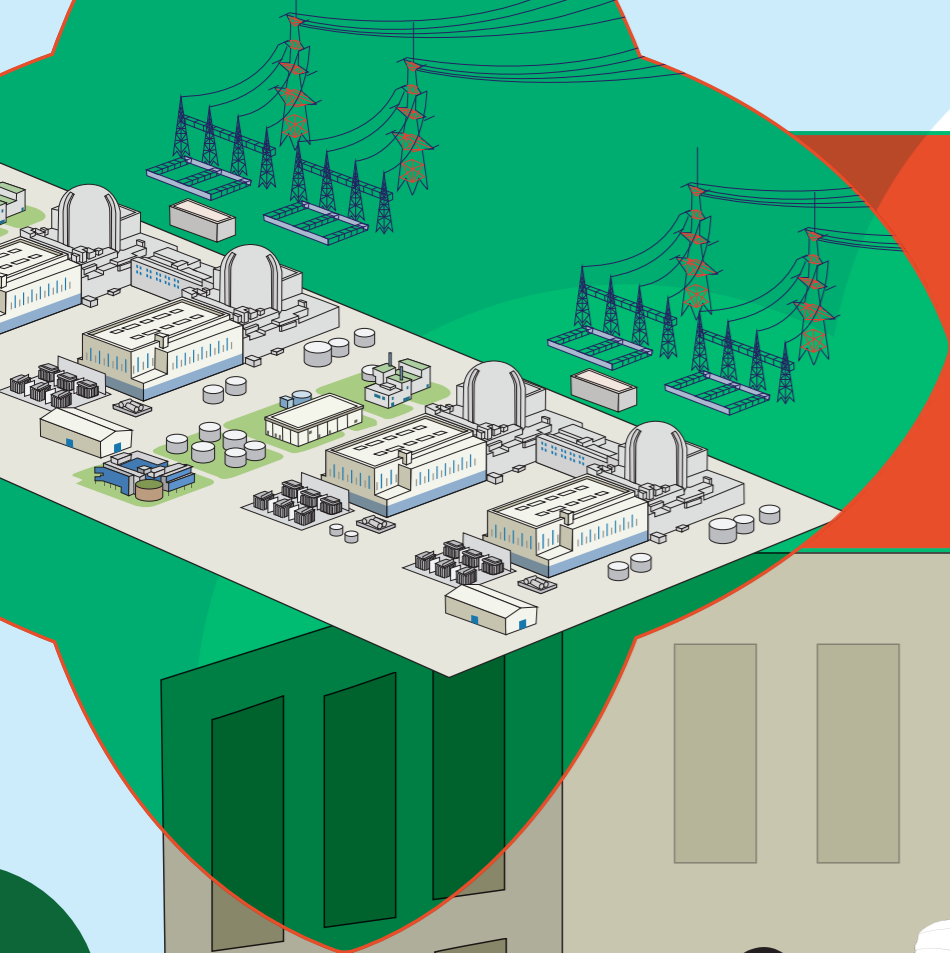
6) In the plant, steam travels through pipes to spin the 's blades.

7) The generator inside a nuclear energy plant uses to create electricity.

8) The electricity produced in a nuclear energy plant is carried over to communities.

9) Nuclear energy plants use to create energy.

1. growing, 2. natural gas, 3. Barakah, 4. Fission, 5. steam, 6. turbine, 7. electromagnets, 8. transmission lines, 9. uranium



Nuclear energy has an important role to play in meeting the UAE's growing demand for electricity. It is a safe, clean, reliable and nearly emissions-free source of electricity that will support our nation's growth for decades to come.



NUCLEAR FACTS



Nuclear energy is being used in more than 30 countries around the world and even powers the Mars rovers and NASA deep space probes!



The Galileo spacecraft orbited Jupiter 35 times over two years and continues to work. It is powered by a small nuclear generator.



Uranium is a source of today's nuclear fuel. In the 19th Century, craftspeople used it to color ceramic plates yellow or certain shades of green.



Uranium is 500 times more abundant than gold.



A single uranium fuel pellet can produce as much energy as 1,780 pounds of coal or 149 gallons of oil.



One uranium pellet contains as much energy as one ton of coal or 481 cubic meters of natural gas.




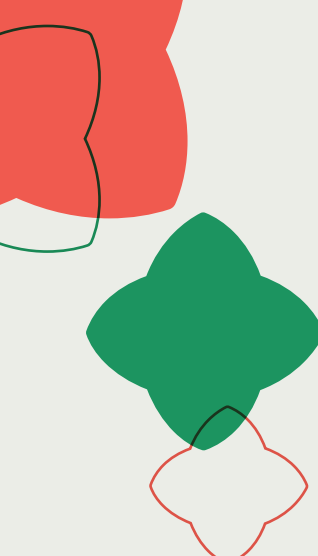
Nuclear energy does not produce greenhouse gases. France relies on nuclear energy for over 80% of its electricity and has the highest air quality in Europe.



The UAE's Barakah Nuclear Energy Plant will prevent the release of 21 million tonnes of greenhouse gasses every year. This is like removing 3.2 million cars from the roads.



One person's electricity needs for 70 years, if supplied by nuclear power, would only produce enough waste to fit into a soda can.




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