

ENERGY PRODUCTION COAL

TO ANSWER ALL THE QUESTIONS YOU WILL NEED TO DOWNLOAD THE 'ENERGY PRODUCTION' APP, FROM THE INTERACTIVE MOBILE APP SECTION OF www.technologystudent.com

LINK

https://www.technologystudent.com/mobapps/ENERGY_SYSTEMS_UPDATE1.pdf

Once you have downloaded the App, you can use it to navigate the website. You may need to follow the links on each page of the App, to research / complete answers to all the questions.

**ARE YOU READY?
USE THE MOBILE App!!**

1

HOW IS COAL FORMED?

2

HOW IS IT EXTRACTED FROM THE EARTH?

3

HOW IS ELECTRICITY PRODUCED FROM COAL? INCLUDE A SIMPLE LABELLED DIAGRAM AND AN EXPLANATION.

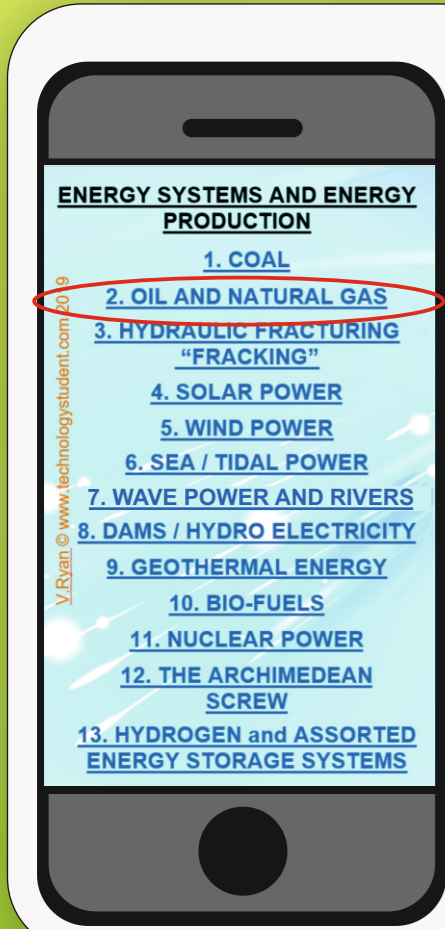
DIAGRAM

EXPLANATION

4

DESCRIBE SOME OF ENVIRONMENTAL PROBLEMS ASSOCIATED WITH ELECTRICITY PRODUCTION FROM COAL.

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ENERGY PRODUCTION OIL AND NATURAL GAS

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**ARE YOU READY?
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1

HOW IS OIL AND NATURAL GAS FORMED?

2

DESCRIBE THREE DISADVANTAGES OF OIL AND NATURAL GAS PRODUCTION

3

HOW ARE OIL AND NATURAL GAS EXTRACTED FROM THE EARTH? INCLUDE A SIMPLE LABELLED DIAGRAM AND AN EXPLANATION.

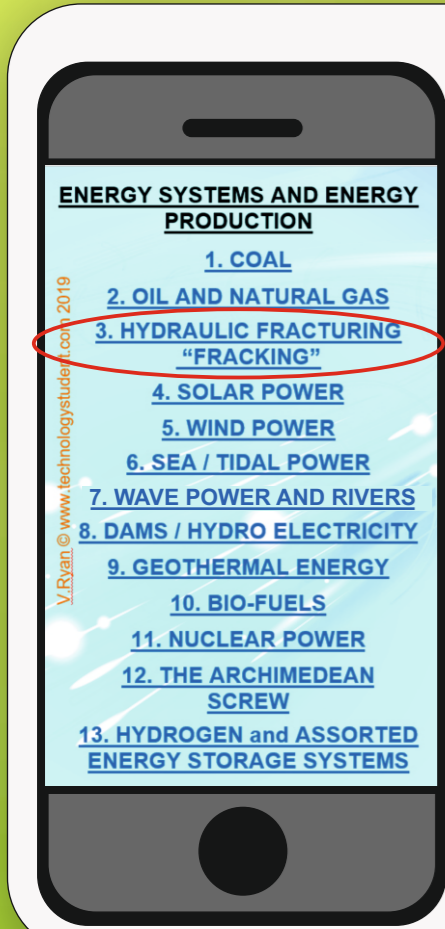
DIAGRAM

EXPLANATION

4

DESCRIBE THREE ADVANTAGES OF OIL AND NATURAL GAS PRODUCTION

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HYDRAULIC FRACTURING 'FRACKING'

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**ARE YOU READY?
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1

WHAT IS HYDRAULIC FRACTURING (FRACKING)?

2

DESCRIBE SOME OF THE ARGUMENTS AGAINST 'FRACKING'.

3

DRAW A DIAGRAM THAT REPRESENTS HYDRAULIC FRACTURING.

DIAGRAM

EXPLANATION

4

DESCRIBE SOME OF THE ARGUMENTS IN SUPPORT OF FRACKING.

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SOLAR POWER

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**ARE YOU READY?
USE THE MOBILE App!!**

1

WHAT IS SOLAR POWER?

2

HOW DO MODERN SOLAR PANELS HEAT WATER?

3

WHAT IS A PHOTOVOLTAIC CELL? INCLUDE A DIAGRAM AND EXPLANATION

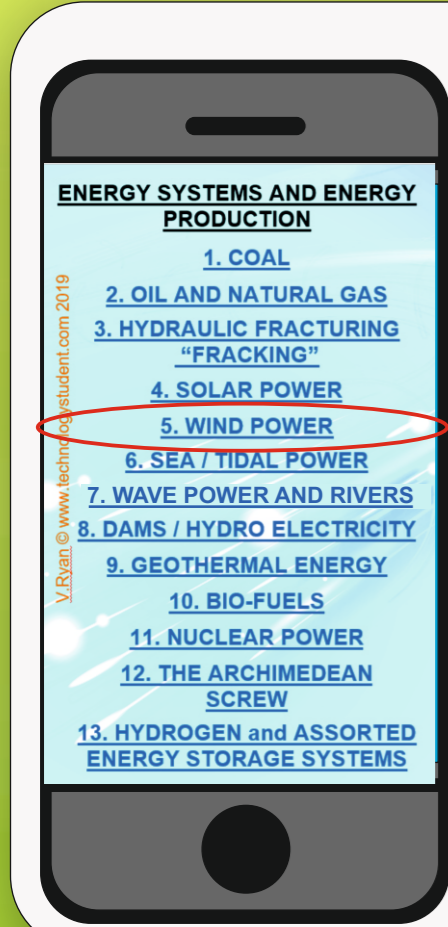
DIAGRAM

EXPLANATION

4

LIST TWO ADVANTAGES AND DISADVANTAGES OF SOLAR POWER.

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WIND POWER

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1

BEFORE WIND POWER WAS USED TO PRODUCE ELECTRICITY - WHAT WAS IT USED FOR?

2

DESCRIBE THREE ADVANTAGES OF USING WIND POWER.

3

WHAT ARE THE ADVANTAGES OF PLACING WIND FARMS AT SEA?

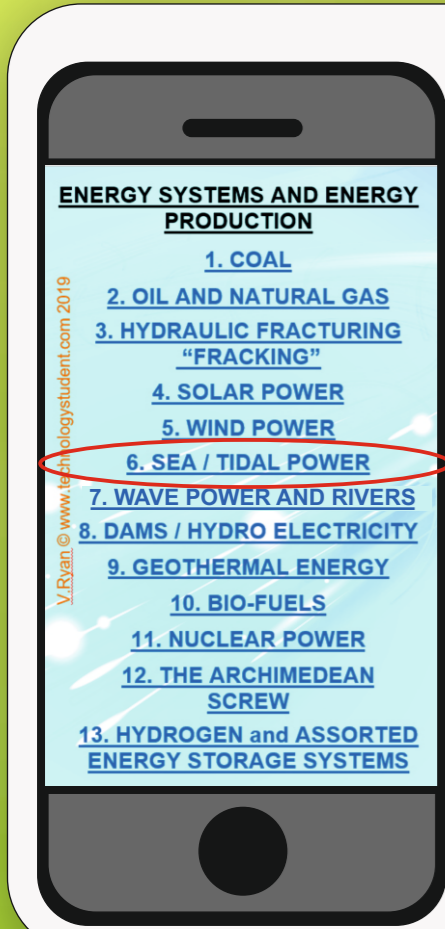


YOUR EXPLANATION

4

DESCRIBE THREE DISADVANTAGES OF WIND POWER.

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SEA AND TIDAL POWER

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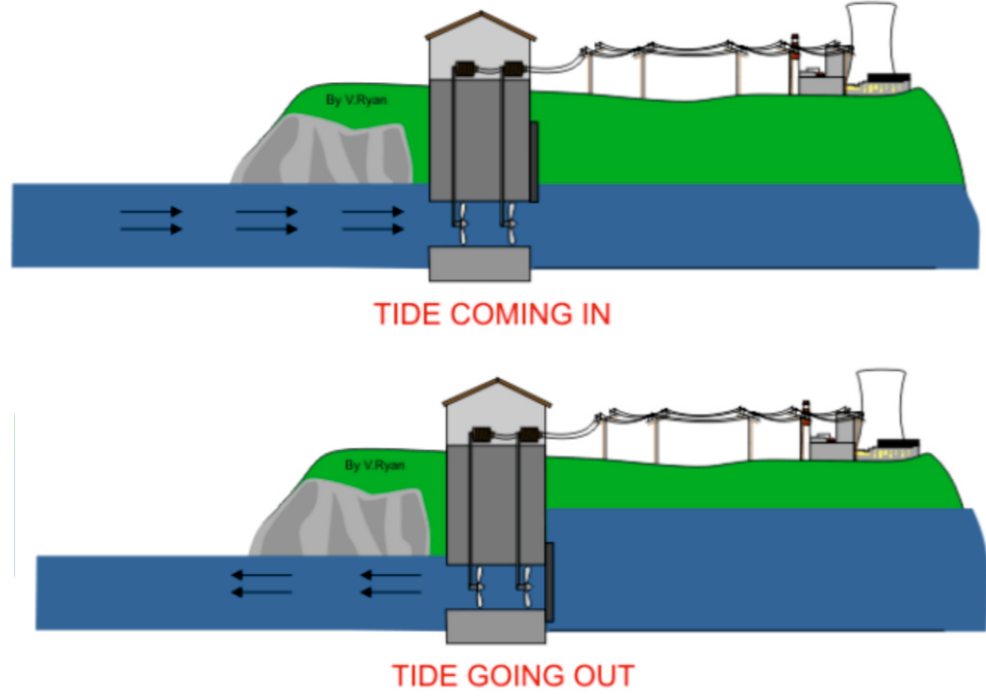
**ARE YOU READY?
USE THE MOBILE App!!**

1 IN SIMPLE TERMS, HOW IS ELECTRICITY PRODUCED FROM THE POWER OF THE TIDE?

2 WHAT IS THE THE OPENHYDRO TIDE TURBINE - SCOTLAND?



3 HOW DOES THE RANCE TIDAL POWER SCHEME IN FRANCE WORK?



YOUR EXPLANATION

4 ARE THERE ENVIRONMENTAL ISSUES RELATED TO BUILDING LARGE SCALE TIDAL POWER SCHEMES?

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WAVE POWER

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**ARE YOU READY?
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1 BELOW IS AN OSCILLATING WATER COLUMN. HOW DOES IT PRODUCE ELECTRICITY FROM THE WAVES?

Write your answer in the next box.

By V.Ryan

WRITE YOUR ANSWER HERE

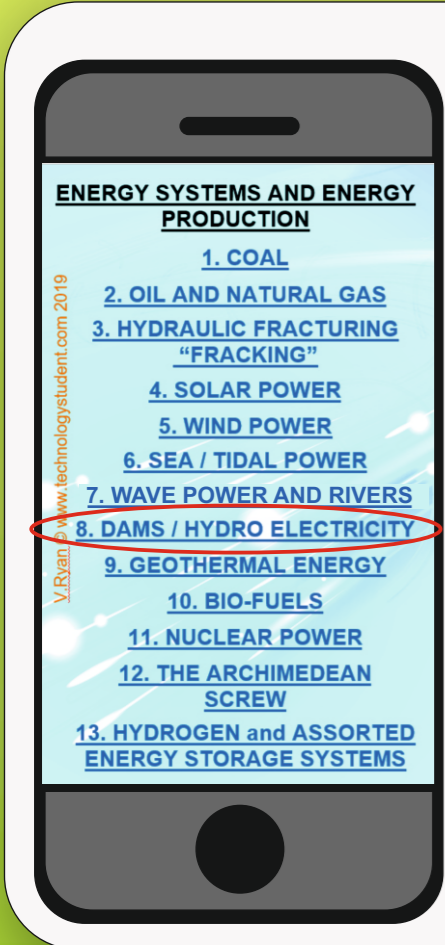
2 HOW COULD COASTAL DEFENCES BE USED TO PRODUCE ELECTRICITY?

YOUR EXPLANATION

By V.Ryan

3 WHAT WAS THE SALTER DUCK?

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DAMS - HYDROELECTRICITY

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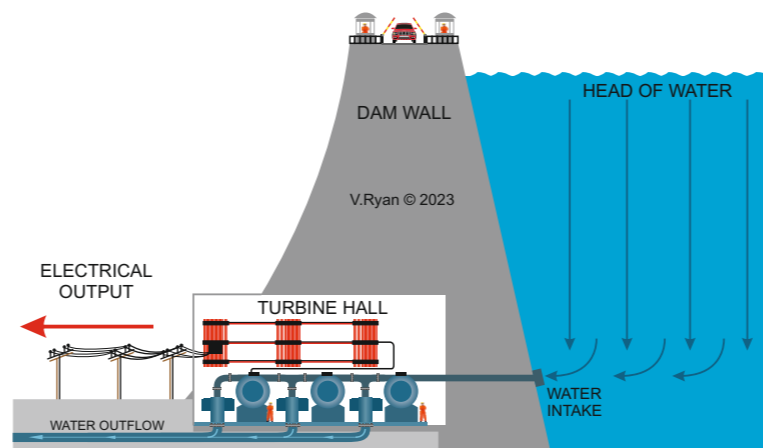
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**ARE YOU READY?
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1 EXPLAIN HOW THIS TYPICAL HYDROELECTRICITY SYSTEM WORKS

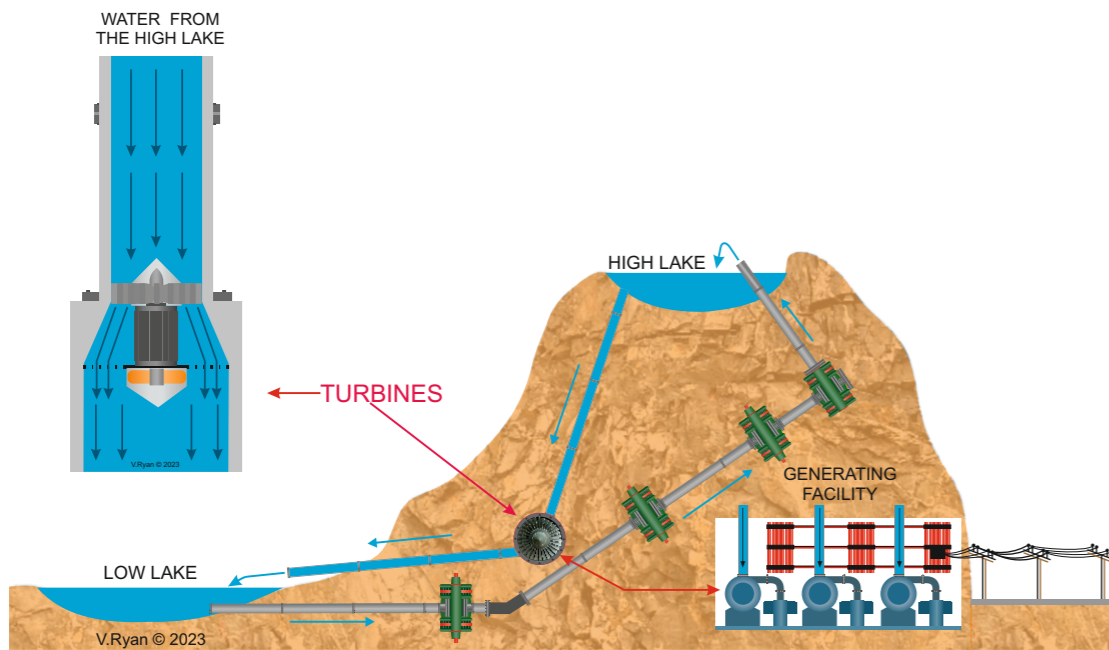
Write your answer in the next box.



WRITE YOUR ANSWER HERE

2

HOW DOES A 'PUMP STORAGE SYSTEM' WORK ? (Such as Dinorwig in North Wales)

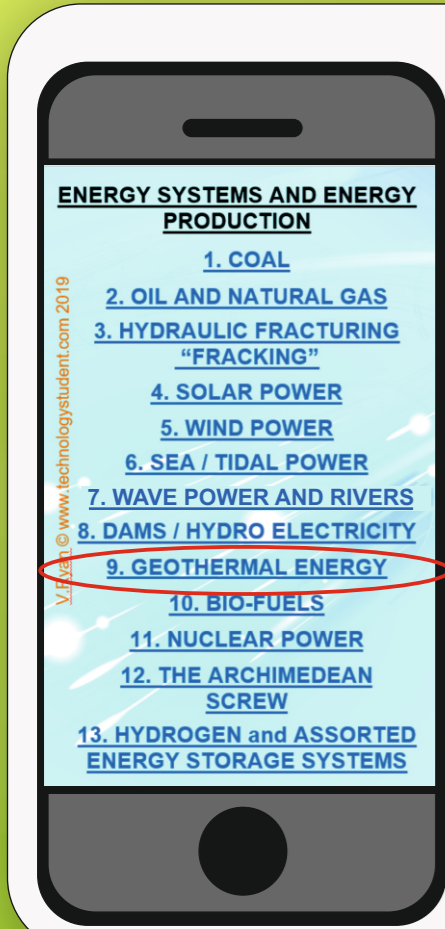


YOUR EXPLANATION

3

WHAT ARE THE ENVIRONMENTAL DISADVANTAGES OF BUILDING DAMS?

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GEOTHERMAL ENERGY

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LINK

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**ARE YOU READY?
USE THE MOBILE App!!**

1 WHAT IS GEOTHERMAL ENERGY?

2 DESCRIBE SOME ADVANTAGES OF GEOTHERMAL POWER.

3 HOW DOES A 'DRY STEAM POWER PLANT' WORK?

YOUR EXPLANATION

4 IN YOUR OPINION, ARE THERE ANY DISADVANTAGES TO GEOTHERMAL ENERGY?

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BIOFUELS

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**ARE YOU READY?
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1 WHAT ARE BIOFUELS? INCLUDE REFERENCE TO WILLOW IN YOUR ANSWER.

2 METHANE IS A BIOFUEL. HOW IS IT COLLECTED / STORED AND USED?

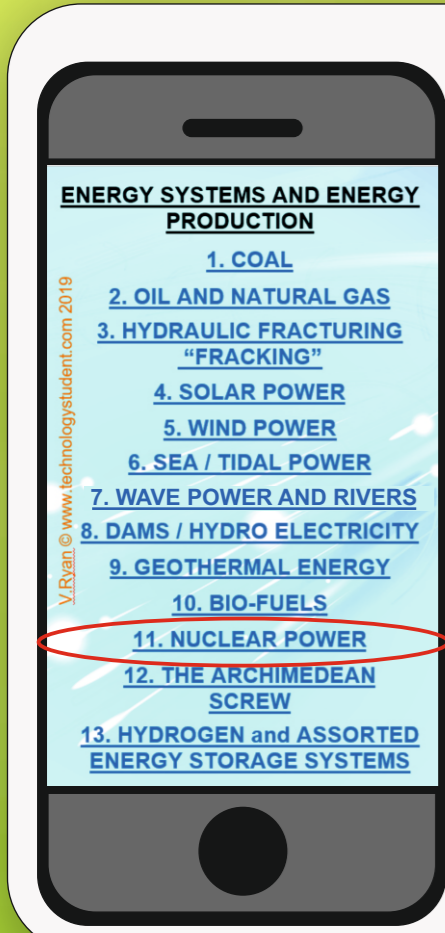
3 DESCRIBE HOW DOMESTIC WASTE CAN BE USE TO PRODUCE ELECRICITY.

YOUR EXPLANATION

Labels in diagram: HIGH PRESSURE STEAM TO TURBINES, STEAM, WATER TANK, EXHAUST FUMES PIPE, DOMESTIC WASTE BURNING, GAS JETS TO START BURNING PROCESS.

4 HOW IS BRAZIL USING ETHANOL AS A REPLACEMENT FOR FOSSIL FUELS?

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NUCLEAR POWER

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**ARE YOU READY?
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1 NUCLEAR POWER IS PRODUCED FROM URANIUM. WHAT IS THE 'FISSION' PROCESS?

2 WHAT IS:

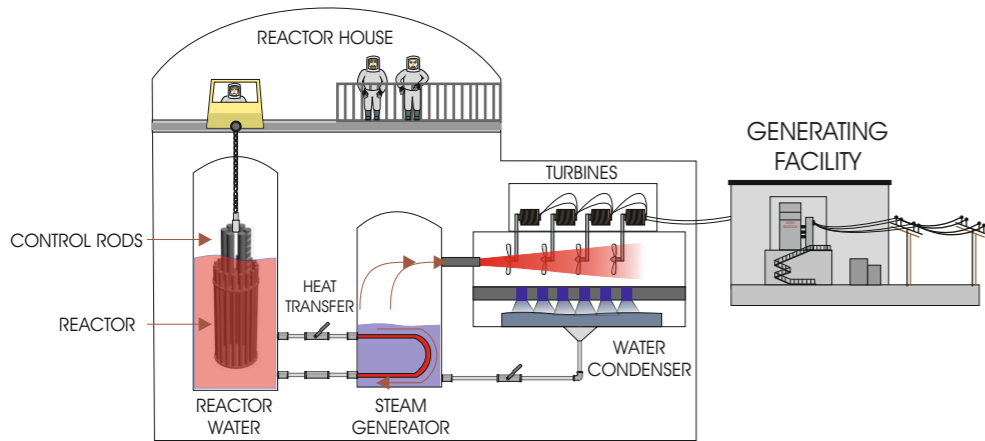
LOW LEVEL WASTE:

INTERMEDIATE LEVEL WASTE:

HIGH LEVEL WASTE:

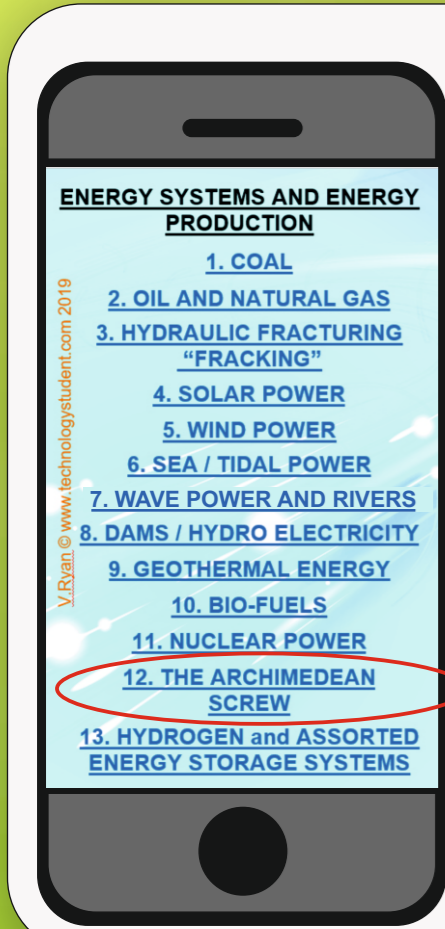
3 HOW IS ELECTRICITY PRODUCED BY NUCLEAR POWER?

YOUR EXPLANATION



4 LIST THREE DISADVANTAGES OF NUCLEAR POWER.

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ARCHIMEDEAN SCREW

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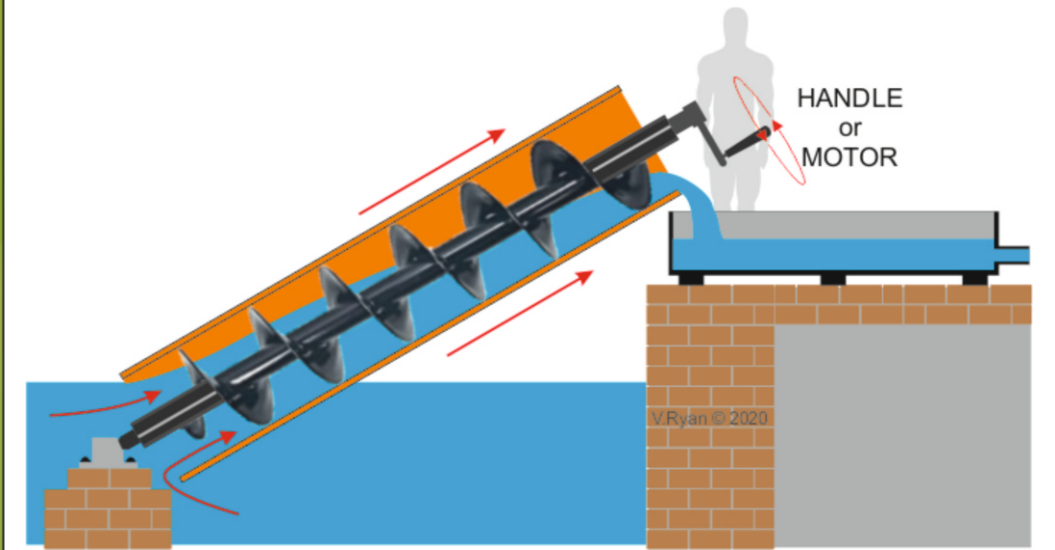
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**ARE YOU READY?
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1

DESCRIBE HOW AN ARCHIMEDEAN SCREW IS USED TO LIFT WATER.
As seen opposite. Use the diagram for reference.

ARCHIMEDEAN SCREW BEING USED TO LIFT WATER

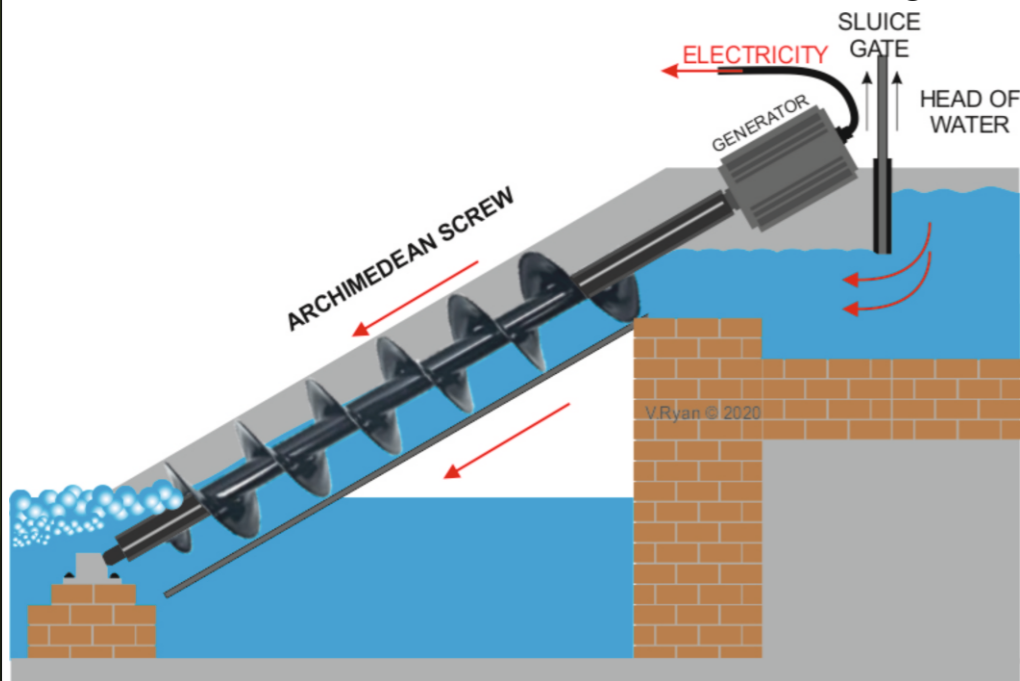


2

HOW IS ELECTRICITY GENERATED BY AN ARCHIMEDEAN SCREW?

Use the diagram for reference.

YOUR EXPLANATION



3

SEARCH THE INTERNET FOR AN IMAGE OF AN ARCHIMEDEAN SCREW, BEING USED TO GENERATE ELECTRICITY.

Include the name and location of the scheme.

NAME: _____

LOCATION: _____

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HYDROGEN

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1

BRIEFLY DESCRIBE TWO WAYS HYDROGEN CAN BE USED TO POWER A CAR.

2

DRAW A LABELLED DIAGRAM SHOWING HOW HYDROGEN IS USED TO POWER A VEHICLE.

4

DESCRIBE THE 'RENEWABLE HYDROGEN CYCLE'.

3

DRAW A LABELLED DIAGRAM OF A HYDROGEN FUEL CELL. EXPLAIN HOW IT PRODUCES ELECTRICITY.

YOUR EXPLANATION

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**ARE YOU READY?
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1

BRIEFLY DESCRIBE THE HYDROGEN ECONOMY.

2

PASTE AN IMAGE DISPLAYING THE HYDROGEN ECONOMY.

4

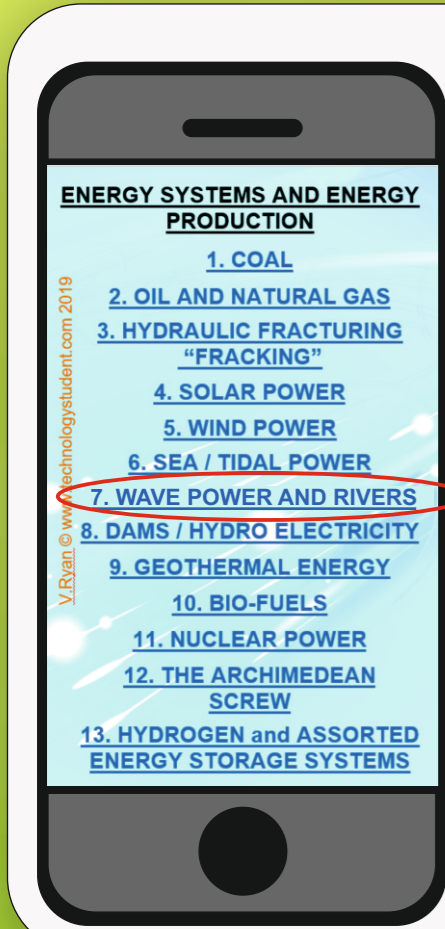
LIST TWO ADVANTAGES AND DISADVANTAGES OF USING HYDROGEN AS AN ENERGY SOURCE.

3

**HOW IS HYDROGEN USED AT A POWER STATION TO PRODUCE ELECTRICITY?
Include a diagram and written explanation**

YOUR EXPLANATION

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HYDROKINETIC TURBINES AND MODERN WATER WHEELS

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1

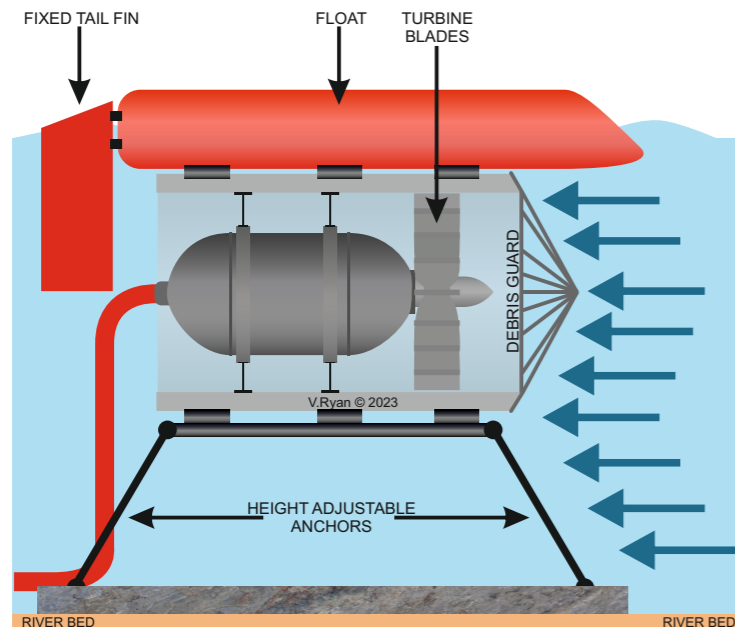
WHAT ARE HYDROKINETIC HYDROELECTRIC TURBINES?

2

PASTE AN IMAGE OF A 'RIVER BED SYSTEM' HYDROKINETIC HYDROELECTRIC TURBINE.

3

DESCRIBE / EXPLAIN THE FLOATING HYDROKINETIC TURBINE, SHOWN BELOW



YOUR EXPLANATION

4

LIST TWO ADVANTAGES OF A RIVER BED HYDROKINETIC TURBINE / SYSTEM

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