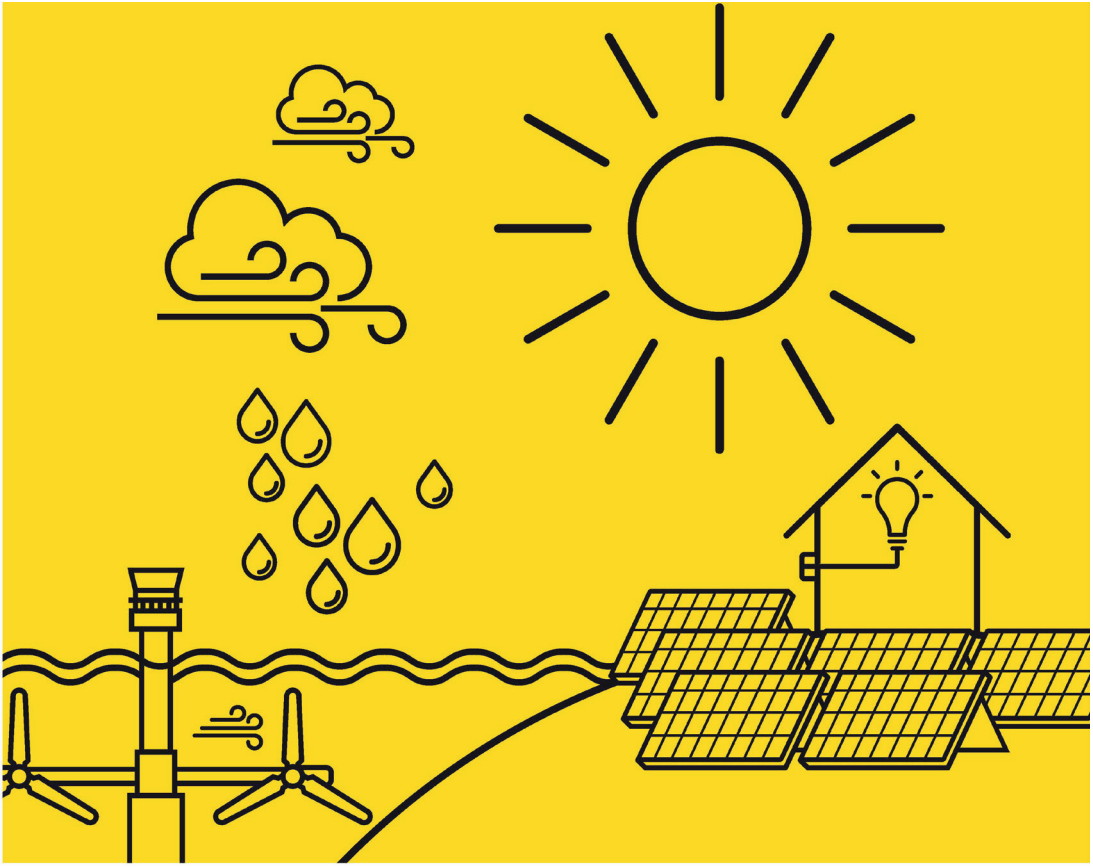
SAWEA
South African Wind Energy Association

WattsCURRENT

Clean energy for tomorrow



energyDRIVE

Clean energy for tomorrow

Scatec

EDF power solutions

Dorper Wind Farm

ENERTRAG

LEROLE POWER

LOERIESFONTEIN WIND FARM

What a bright idea

ENERGY EFFICIENCY

More than 90% of the energy we use comes from fossil fuels that are nonrenewable and cause pollution. One of the greatest resources we have at our fingertips is energy efficiency, or the energy that would otherwise be wasted.

EVERYBODY NEEDS POWER

Some of the ways we generate and use power can have a dramatic effect on the environment. This energy awareness activity book provides a number of clues and tips on how to make smart energy choices, save money, and reduce our impact on the environment. Before you begin, check out the most common sources of renewable energy on the opposite page.

Did you know?



The amount of solar energy that hits the earth in one minute meets the world's energy needs for one year.

RENEWABLE ENERGY

Renewable energy does not pollute the environment and can be continually replenished. Here are some of the major renewable resources being used today:



SOLAR ENERGY

Solar energy is the Sun's radiant energy that can be absorbed, stored, and released by substances or converted directly into electricity.



WIND ENERGY

Wind energy is used to turn the blades connected to a turbine to produce electricty. This source of energy is becoming increasingly popular both onshore and offshore.



GEOTHERMAL ENERGY

Geothermal energy is produced in the Earth's core. Low-temperature geothermal can be used to heat or cool interior spaces. High-temperature geothermal resources can be used to produce steam and electricity.



BIOMASS ENERGY

Biomass is any organic material that can be burned or converted to fuel. When burned, the energy in biomass is released as heat and can be used as an energy source.

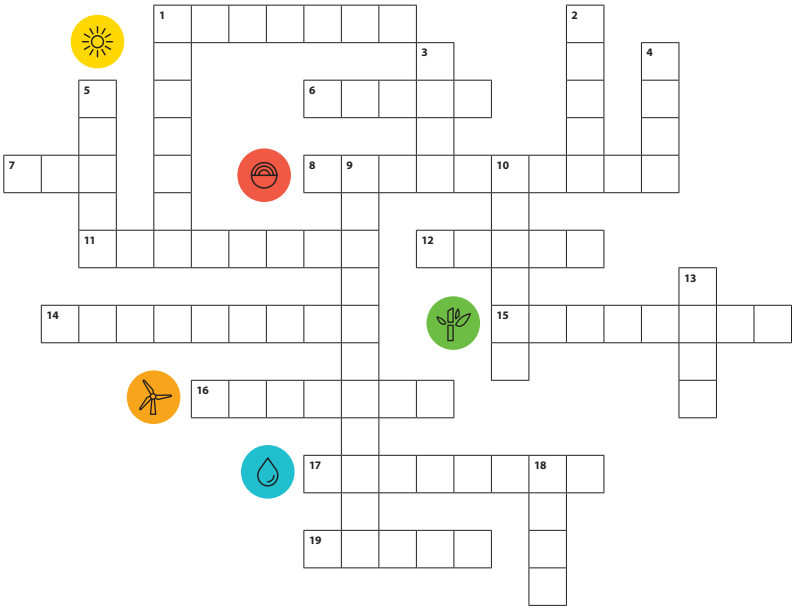


HYDRO ENERGY

Flowing water creates energy that can be captured and converted into electricity. This is called hydroelectric power or hydropower. A hydro-electric power plant uses a dam on a river to store water in a reservoir.

Think outside the box

Use the clues below to complete the crossword.



ACROSS

1. An energy storage device
6. Producing the least pollution
7. Compact fluorescent lamp or bulb
8. Energy produced by the internal heat of the Earth
11. A natural material
12. Term for energy made from clean, renewable resources
14. Able to work well without wasting energy
15. Produce energy
16. Machine to create wind energy
17. One thousand units of electrical power
19. Power generated from moving water

DOWN

1. Organic matter which is available on a renewable basis
2. Energy that comes from water in vapour form
3. A unit of electrical power
4. Any material that can be burned to make energy
5. Electromagnetic energy transmitted from the Sun
9. The energy of moving electrons
10. A supply of power
13. To prevent the waste or loss of energy
18. A lighting source designed to shine directly on a specific work area; an assignment

Clean & green

Join the search for renewable and efficient energy! Find the words below in the word search.

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

biomass
CFL
clean
conserve
efficient
electricity
energy
fossil
fuel
generate
geothermal
green
hybrid
hydro
hydrogen
kilowatt
photovoltaic
power
renewable
resource
save
science
solar
star
sustainable
turbine
watt
weatherize
wind

Did you know?



Extracting energy from biomass is an ancient practice dating back to when people first burnt wood to provide heat and light.

Do the maths

If every American home replaced just one light bulb with an energy saving bulb, we would save enough energy to light more than 3 million homes a year. Fit the numbers 1 to 9 in each 3 x 3 square, row and column. No repeats!

	7			4	2		5	
	4			8			7	
	9			5			6	
7					9			2
	5	6			4	3		9
		4			5			7
5			3				9	
3				6		8		
4			5					6

1 =

Did you know?

Hydro energy today provides approximately 20% of the world's electricity and is the main energy source for more than 30 countries.

Did you know?

One wind turbine can produce enough electricity to power up to 300 homes.

Don't be clueless

Break the code and get the message!



E N E R G Y _ _ _ _ _



_ _ _ _ _ _ _ _ _ _ _



_ _ _ _ _ _ _ _ _ _ _ _ _

KEY



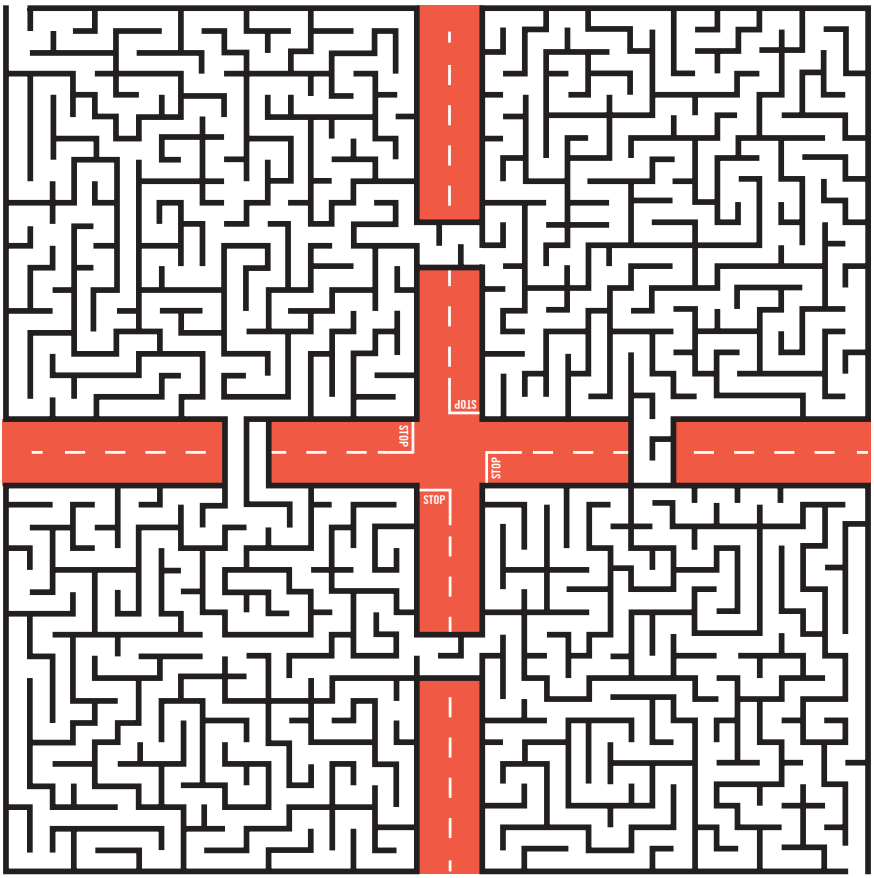
Did you know?

Spacecrafts and space stations such as the International Space Station (ISS) often use solar panels to generate power.

Be an energy champion

Save fuel by planning your route, combining trips and sharing rides.

START



END

Make the connection

Efficiency = Savings! Connect each word with the correct meaning.

CLEAN	**1**	**a**	Monitor setting
GREEN	**2**	**b**	Update with efficient equipment
RESOURCE	**3**	**c**	Produce power
OFF-PEAK	**4**	**d**	Healthy, efficient, sustainable
GENERATE	**5**	**e**	Insulate and prevent air leaks
ALTERNATIVE FUEL	**6**	**f**	Produce more work with less energy
BIOMASS	**7**	**g**	Renewable energy resources
EFFICIENT	**8**	**h**	Organic matter to produce energy
WEATHERIZE	**9**	**i**	Inefficient light bulb
FOSSIL FUEL	**10**	**j**	Efficient vehicle with advanced technology
INCANDESCENT	**11**	**k**	Hydrogen and Ethanol
RETROFIT	**12**	**l**	A natural material
HYBRID	**13**	**m**	A unit of electrical measure
WATT	**14**	**n**	Coal, oil, and gas
SLEEP	**15**	**o**	Time of lower energy demand

Did you know?

10%

Biomass energy currently meets approximately 10% of human energy needs around the world.

Did you know?



Volcanoes and hot springs are examples of geothermal energy.

Watt a difference

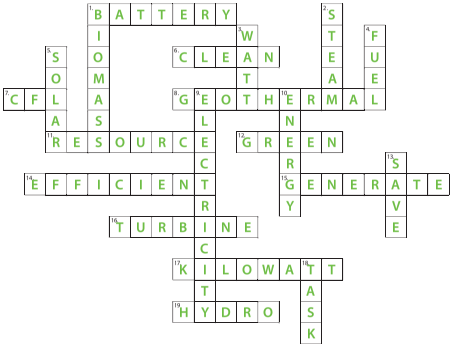
Spot the difference! See if you can find all 14.



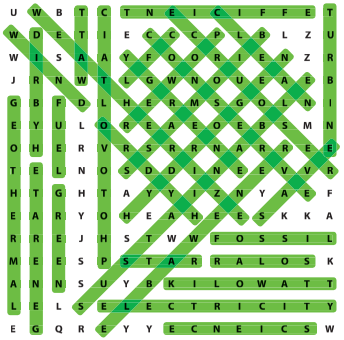


Solutions

Page 4 | Think outside the box



Page 5 | Clean & green



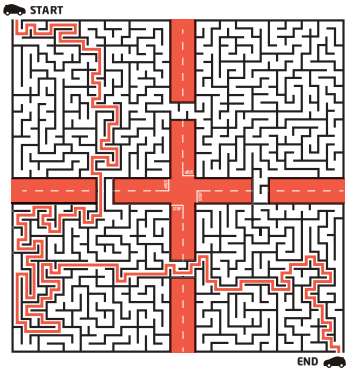
Page 6 | Do the maths

6	7	3		4	2	9	5	8
	4	5	9	8	6	2	7	3
8	9	2	7	5	3	4	6	
7	8		6	3	9	5	4	2
2	5	6	8	7	4	3		9
9	3	4	2		5	6	8	7
5	6	8	3	2		7	9	4
3		9	4	6	7	8	2	5
4	2	7	5	9	8		3	6

Page 7 | Don't be clueless

ENERGYDRIVE. CLEAN ENERGY FOR TOMORROW.

Page 8 | Be an energy champion



Page 10 | Watt a difference



Page 9 | Make the connection

1 - g	**6** - k	**11** - i
2 - d	**7** - h	**12** - b
3 - l	**8** - f	**13** - j
4 - o	**9** - e	**14** - m
5 - c	**10** - n	**15** - a

Powering South Africa's

Renewable energy is helping South Africa produce cleaner electricity while creating jobs, supporting communities and protecting the environment. As South Africa grows, we need more electricity. Wind, solar and battery storage help provide reliable power while reducing pollution and making our energy system stronger.

THE RENEWABLE ENERGY JOURNEY



RESEARCH & INNOVATION

Scientists, researchers and innovators develop new technologies that improve how energy is generated, stored and used.



PLANNING & DEVELOPMENT

Before a project is built, specialists conduct studies, secure permits, engage stakeholders and design solutions.



CONSTRUCTION & OPERATIONS

Engineers, technicians, project managers and construction teams bring renewable energy projects to life and keep them running.



ENVIRONMENT & SUSTAINABILITY

Environmental specialists help protect ecosystems, wildlife, water resources and biodiversity.



COMMUNITIES & SOCIAL IMPACT

Community development practitioners work with local communities to maximise social and economic benefits.



BUSINESS & FINANCE

Financial, legal, procurement and commercial teams help ensure projects are successful and sustainable.

Future

Did you know?

South Africa has some of the best solar resources in the world.

The country's wind resources are among the best globally.

Battery Energy Storage Systems (BESS) store electricity so it can be used even when the sun isn't shining or the wind isn't blowing.

Renewable energy helps reduce greenhouse gas emissions.

Greenhouse gases trap heat in the atmosphere, causing climate change. Every unit of electricity produced by wind or solar instead of coal helps reduce carbon dioxide (CO_2) emissions, improves air quality and protects our planet for future generations.

QUICK FACT

South Africa's renewable energy programme has already helped avoid millions of tonnes of CO_2 emissions by replacing electricity that would otherwise have been generated from fossil fuels.

Renewable energy also creates jobs in engineering, construction, science, communications, finance, community development and many other fields.



EXPLORE MORE

GLOBAL WIND ATLAS

WIND ATLAS FOR SOUTH AFRICA

SAWEA RESOURCE CENTRE

Could you work in renewable energy?

Renewable energy needs people with many different talents - not just engineers. Whether you enjoy solving problems, helping people, protecting nature, designing graphics or managing projects, there could be a career for you.



I ENJOY MATHS, SCIENCE AND TECHNOLOGY

- Electrical Engineer
- Mechanical Engineer
- Energy Analyst
- Battery Storage Specialist
- Mechatronics Technician



I ENJOY BUILDING AND FIXING THINGS

- Wind Turbine Technician
- Solar PV Technician
- Electrician
- Millwright
- Construction Supervisor



I CARE ABOUT PEOPLE AND COMMUNITIES

- Community Liaison Officer
- Social Performance Practitioner
- Enterprise Development Specialist
- Socio-Economic Development Coordinator
- Stakeholder Engagement Specialist



I CARE ABOUT THE ENVIRONMENT

- Environmental Scientist
- Environmental Assessment Practitioner
- Ecologist
- Sustainability Specialist
- Biodiversity Specialist

I ENJOY BUSINESS AND LEADERSHIP

- Project Manager
- Financial Analyst
- Procurement Specialist
- Commercial Manager
- Investment Analyst

I ENJOY WRITING, DESIGN AND COMMUNICATION

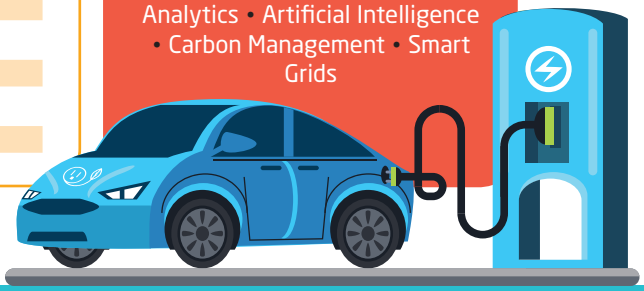
- Communications Specialist
- Social Media Coordinator
- Graphic Designer
- Marketing Practitioner
- Public Relations Specialist

I AM INTERESTED IN LAW, POLICY AND GOVERNMENT

- Energy Policy Advisor
- Environmental Lawyer
- Regulatory Specialist
- Climate Policy Analyst
- ESG Reporting Specialist

CAREERS OF THE FUTURE

Battery Storage • Green Hydrogen • Electric Vehicles • Climate Finance • Energy Data Analytics • Artificial Intelligence • Carbon Management • Smart Grids



Your path into the energy sector

There is no single route into renewable energy. Whether you choose university, a TVET college, an apprenticeship or workplace training, every pathway can lead to exciting career opportunities.

CHOOSE YOUR PATH

LEAVE SCHOOL

UNIVERSITY	TVET COLLEGE
DEGREE	DIPLOMA / TRADE
INTERNSHIP	APPRENTICESHIP

GRADUATE PROGRAMME / LEARNERSHIP

RENEWABLE ENERGY CAREER

TVET & TECHNICAL TRAINING

- ELECTRICAL ENGINEERING
- ELECTRICAL INFRASTRUCTURE CONSTRUCTION
- MILLWRIGHT TRAINING
- MECHATRONICS
- FITTING AND TURNING
- SOLAR PV INSTALLATION
- WIND TURBINE TECHNICIAN TRAINING

THE FUTURE NEEDS YOU

The renewable energy sector needs innovators, problem-solvers, communicators, scientists, technicians, environmental champions, community builders and future leaders. There is a place for every talent in South Africa's energy future.

STUDY OPTIONS

ENGINEERING
Electrical Engineering
Mechanical Engineering
Civil Engineering
Mechatronics

ENVIRONMENT AND SUSTAINABILITY
Environmental Science
Geography
Ecology
Climate Studies
Sustainable Development

POLICY AND DEVELOPMENT
Public Policy
Development Studies
Public Administration
International Relations

BUSINESS AND FINANCE
Economics
Finance
Accounting
Supply Chain Management
Project Management

PEOPLE AND COMMUNITIES
Community Development
Sociology
Social Sciences
Psychology

COMMUNICATIONS AND MEDIA
Communications
Marketing
Graphic Design
Journalism
Public Relations

Did you know?

Many people working in renewable energy studied subjects such as economics, communications, environmental science, sociology, finance, law and public policy.

Organisations to ex

SAWEA
South African Wind Energy Association

The voice of South Africa's wind energy industry. Supports skills development, industry growth and innovation. Implements the Wind Industry Internship Programme (WIIP) for graduates looking to enter the sector.

SAPVIA
South African Photovoltaic Industry Association

Represents South Africa's solar photovoltaic (PV) industry and supports skills development, industry growth and innovation.

EW SETA
ENERGY AND WATER SECTOR EDUCATION AND TRAINING AUTHORITY

Provides bursaries, learnerships, internships and training opportunities across the energy sector.

sanedi
South African National Energy Development Institute

Supports energy research, innovation and technology development.

CSIR
Touching lives through innovation

One of South Africa's leading scientific and technology research institutions.

SARETEC
SOUTH AFRICAN RENEWABLE ENERGY TECHNOLOGY CENTRE

South Africa's specialist renewable energy training centre for wind and solar technicians.

plore

GreenCape

Supports green economy innovation, enterprise development and skills programmes.

GBC SA
Green Building Council South Africa

Promotes sustainable buildings and green skills across the built environment.

energy mobility
education trust

Supports education and skills development initiatives linked to the energy sector.

Many universities conduct renewable energy and sustainability research, including Stellenbosch University, the University of Cape Town, the University of Pretoria, North-West University, Nelson Mandela University and the Durban University of Technology.

EXPLORE MORE

SAWEA WIIP INFORMATION

EWSETA OPPORTUNITIES

SARETEC TRAINING

SAPVIA

Its not too late to teach our children to take a stand for their planet.





EnergyDrive is a mobile exhibition brought to you by the Energy Technology Station at the Durban University of Technology. This initiative aims to educate and inspire local communities about the limitless possibilities of renewable energy.

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
INYUVESI YASETHEKWINI YEZOBUCHWEPHESHE

EW SETA
ENERGY AND WATER SECTOR EDUCATION AND TRAINING AUTHORITY

energyDRIVE
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