



NATIONAL OCEAN
INDUSTRIES ASSOCIATION

Activity Book

Hi! I'm Shellby the Starfish.
Let's discover some things
about our oceans & energy!

Color the picture
by the numbers:

1. Light Blue 2. Blue 3. Yellow 4. Tan 5. Light Green 6. Green 7. Dark Green 8. Grey 9. Red/Orange 10. Orange

SOME FACTS TO KNOW

1 Our oceans give us many natural resources – fish and seafood, oil, natural gas and minerals. We can also harness the power of waves, tides and currents to generate electricity; and can capture the wind above the ocean to generate electricity too.

2 Oil and natural gas formed millions of years ago, before the dinosaurs, when much of the earth was covered with oceans filled with tiny sea plants and sea animals. As these plants and animals died, they sank to the bottom of the ocean and were covered with sand. Over time, the dead plants, animals and sand built up into layers that heat and pressure turned into natural gas and oil, which provide much of our energy today.

3 Today, companies build drilling rigs on platforms to drill for oil and natural gas found under the ocean floor. They use special ocean maps and equipment to help locate the energy resources. Companies are also building wind turbines offshore to harness wind energy to generate electricity. In some areas, waves, tides and currents are harnessed to generate electricity too. The ocean is full of energy.

4 Oil naturally seeps from the earth's surface beneath the ocean. Every day, about 1,700 barrels of oil seep naturally from the earth into the ocean. This is much more – 150 times more – than oil that accidentally leaks from offshore oil drilling.

5 Workers ride boats and helicopters out to the platforms. There, the oil and natural gas is pumped up and taken back to the land by pipelines and ships.

6 It is very important to protect and preserve the ocean. Scientists, geologists and engineers work to make sure that oil, natural gas, and renewable energy resources are managed with the environment in mind.

7 We use oil to make plastic, gasoline and lubricants. We use natural gas to heat our homes and to cook. Both oil and natural gas produce energy.

8 We use the energy of the ocean – from oil and natural gas to wind, waves, tides and currents – to generate electricity that lights, heats and cools our homes and businesses.

Glossary

Electricity - Moving electrons. Electrons are tiny particles found in atoms. Everything in the universe is made of atoms – every star, every tree and every animal.

Energy - The ability to do work or the ability to move an object. Electrical energy is usually measured in kilowatt hours (kWh), while heat energy is usually measured in British thermal units (Btu).

Natural Gas - An odorless, colorless, tasteless, non-toxic clean-burning fossil fuel.

Pipeline - An enclosed tunnel-like structure (above ground or below) to carry petroleum and natural gas products.

Platform - A structure built offshore to provide an area for workers to drill

for and produce oil and natural gas. Platforms have living quarters for crew and are "miniature cities" in the ocean.

Offshore - The geographic area that lies seaward (off) of the coastline.

Oil - A dark liquid fossil fuel found deep in the Earth. The raw material that petroleum products are made from. Gasoline and most plastics are made from oil.

Renewable energy - Energy that can be easily made or "renewed." We can never use up renewable energy. Wind, waves, tides and ocean currents are renewable energy sources.

Rig - The part of the platform that is used to drill for oil. The rig provides the structure to put the pipe and drillbit into the hole and to lower the pipe into

the ground to bring the oil and natural gas to the surface.

ROV - ROV stands for Remotely Operated Vehicle. An ROV is an unmanned robotic underwater vehicle used to do work in deep water or in dangerous places where man cannot go.

Wind - The natural movement of air. Wind is created by the uneven heating of the earth's surface. Wind is a renewable source of energy used to turn turbines to generate electricity.

Turbine - A machine that uses a flow of wind, water, or steam to turn blades attached to a shaft. Wind turbines sit on top of high towers. Wind blows against the blades of the turbine, making them spin. In hydro-power, water turns turbines to generate electricity.

www.need.org/energyawarenessmonth

Fill'n on Drill'n

ACROSS

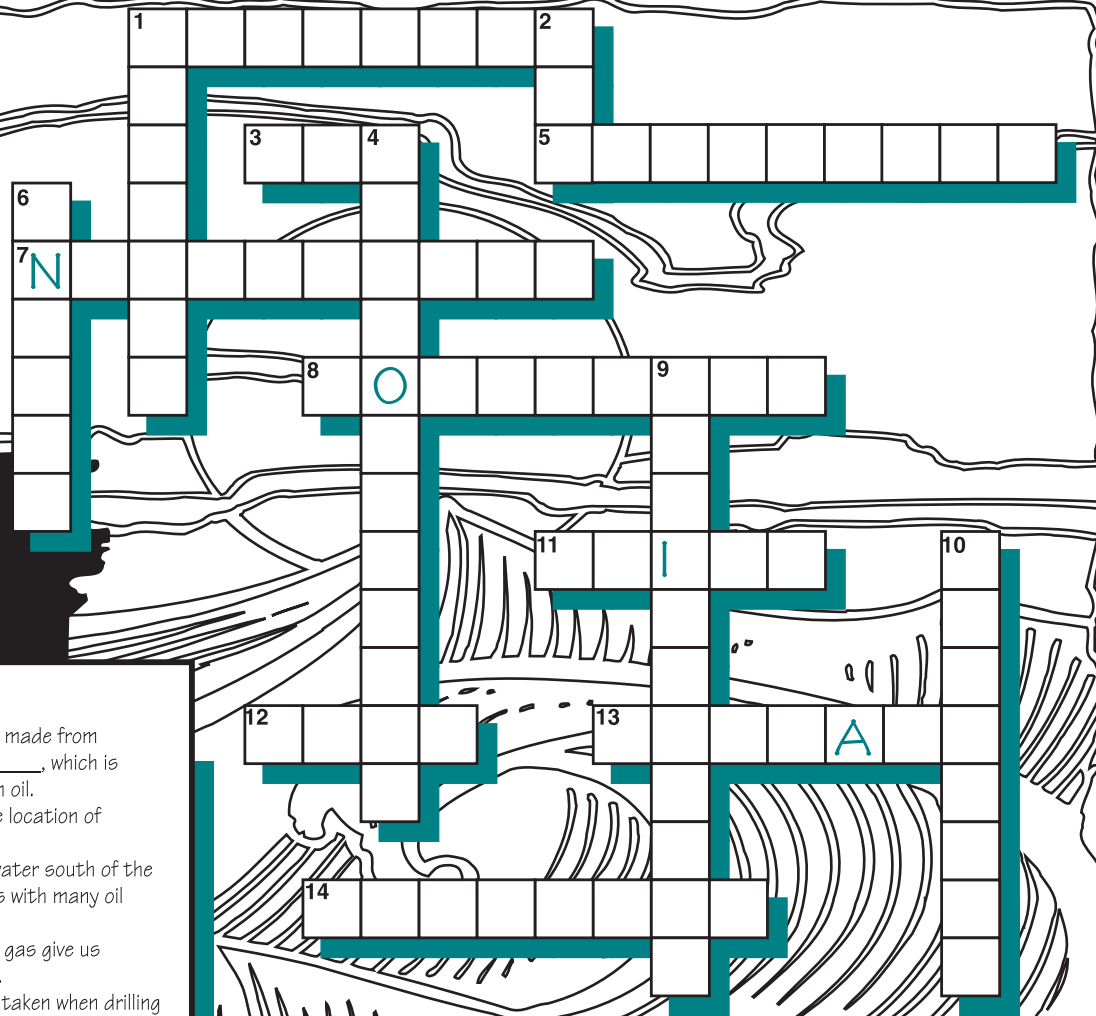
1. Structure used to drill oil.
3. Common name of offshore structure.
5. A black, oily liquid that occurs naturally in the earth.
7. This helps to heat our homes.
8. When we use plastics, chemicals, gasoline, lipstick and other products we are _____ of oil and natural gas.
11. Used to break through rock on the ocean floor.
12. Machines drill through this to reach oil.
13. Oil was formed millions of years ago by dying sea plants and sea _____.
14. Carries the oil to land.

DOWN

1. Many toys are made from _____, which is produced from oil.
2. This shows the location of platforms.
4. Large area of water south of the United States with many oil platforms.
6. Oil and natural gas give us _____.
9. Special care is taken when drilling oil to protect the ocean's _____.
10. When you're not onshore, you're _____.

WORD BANK

offshore	environment	pipeline	rock
platform	animals	map	rig
natural gas	energy	plastic	drill
petroleum	Gulf of Mexico	consumers	



What do you know about oil, the ocean, and energy?



"Sea-ing" is Believing!

Can you find
these things that are above
and in the ocean?

crewboat
turbine
pipeline
energy
current
helicopter
petroleum
drillbit

oil
waves
gas
wind
rigs
fish
well
tides

d r i l l b i t c w z t m f
p i p e l i n e o k e v u i
q n i c k w s e f m c l x s
h e l i c o p t e r j k l h
g w o u p e t r o l e u m p
a d m t z g j o n a g o h f
s k f i s s i l s h d o e w
t a g d o a h e n e r g y i
d u j e l x g u o m u z h n
w t r s b m y m c n o i a d
a w h b p i p e v d r i g s
v l s n i k t u g w s n o c
e o d e e n a c u r r e n t
s i p m r u e k n f y d p m
r l s o z t c r e w b o a t

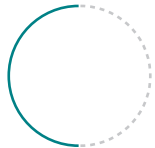
how to draw

it's easy! Just follow the directions below, and by using straight lines and shapes like circles and squares, you can draw a helicopter or a crew boat!

Did you know that energy companies get equipment and crews to their drilling rigs and wind turbines by boat and helicopter?



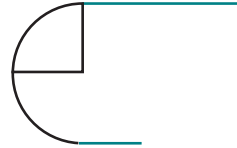
A Helicopter



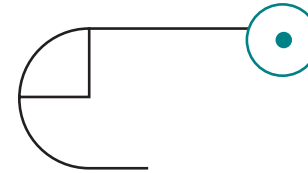
1 Draw half of a circle.



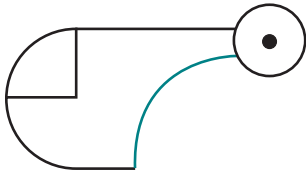
2 Draw a line from the top of the circle halfway down and then to the left.



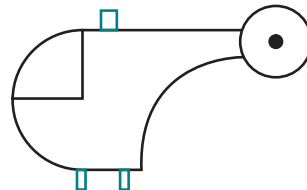
3 Draw a line at the top and then a shorter line from the bottom of the circle..



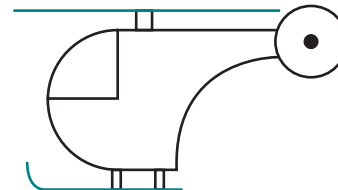
4 Draw a circle at the end of the top line with a small circle inside in the middle.



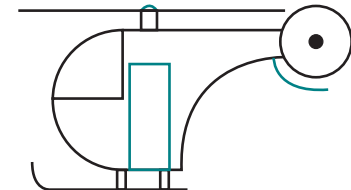
5 Draw a curved line from the bottom to meet the circle (small propeller).



6 Draw 2 small rectangles at the bottom and one slightly larger at the top.



7 Add a straight line at the top for the large propeller and a short line with a curve on the end for the landing strip.



8 Finish by adding a door, a curved line under the small propeller and a small curved line at the top of the large propeller.

A Crew Boat



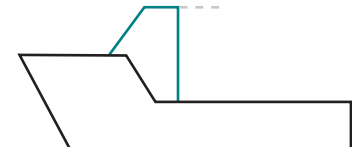
1 Draw two sides of an upside down triangle.



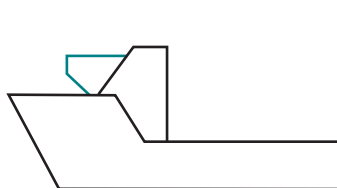
2 Draw a slanted line from the top about midway down to the right.



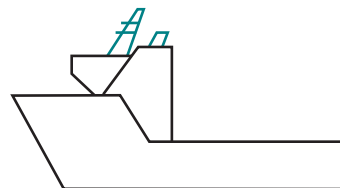
3 Now add a long rectangle to the bottom.



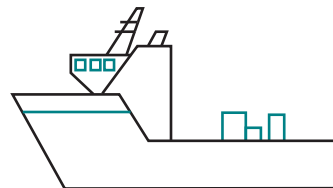
4 Draw a T, then erase the right side. Add a line on the left side down to the top of boat.



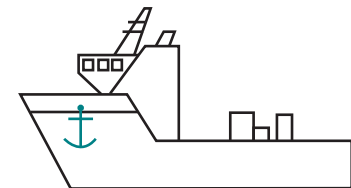
5 Draw the same shape as #4, but smaller & on its side.



6 Draw the 2 slanted rectangles at the top. Add 2 short lines to the one in front.



7 Draw a straight line on the side of boat, then add square windows and boxes for cargo.



8 You can finish it off with an anchor by drawing a small t and add a curve on the bottom left.

Help the
rig crew find
the oil under
the ocean.



Start



Finish

YOU'RE AMAZING!

PUZZLE SOLUTIONS

Sea-ing
is Believing
Word Find
Page 3

drill bit w z t m f
pipeline o k e v u i
q n i c k w s e f m e l x s
helicopter j k l h
g w o u p e t r o l e u m p
a d m t z g j o n a g o h f
s k f i s s i l s h d o e w
t a g d o a h e n e r g y i
d u j e l x g u o m u z h n
w t r e b m y m c n o i a d
a w h b p i p e v d r i g s
v l s n i k t u g w s n o c
e o d e e n a c u r r e n t
s i p m r u e k n f y d p m
r l s o z t o r e w b o a t

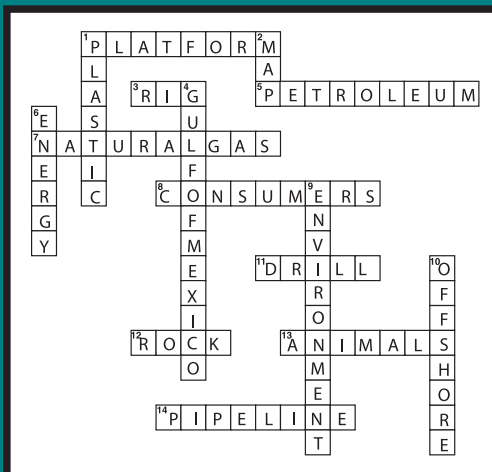
A NOTE FROM SHELLBY TO EDUCATORS

Dear Educator,

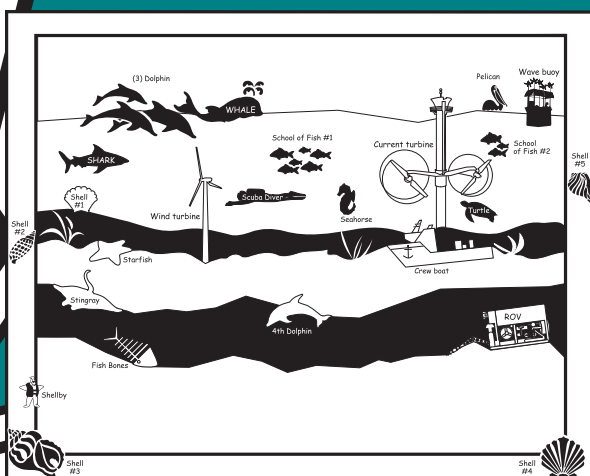
Energy is in the news daily. We are finding ways to use it more wisely and produce it more efficiently. Offshore energy companies work to develop, produce and supply natural gas, oil and renewable energy in an environmentally responsible manner. The National Ocean Industries Association (NOIA) and the National Energy Education Development (NEED) Project have prepared this book to teach children about the energy resources found on the nation's Outer Continental Shelf - oil, natural gas, wind, waves, tides and currents - and the men and women who work to produce energy from these resources each day. All state and national education standards include guidelines for teaching about energy in the classroom and we continue to provide teachers with opportunities for resources and training nationwide. For resources to teach about all energy sources and for more on energy from our oceans, visit www.noia.org and www.need.org/energyawarenessmonth.

Drilling Rig Maze, Page 5

Back Cover - Picture Find



Fill'n on Drill'n Crossword Puzzle
Page 2



**CAN YOU
FIND THESE
OBJECTS
IN THE
PICTURE?**

- | | | | | |
|----------------|---------------|------------------|-------------------------|---------------------|
| 1. Seahorse | 5. Stingray | 9. ROV | 13. (4) Dolphin | 16. Whale |
| 2. Shark | 6. Starfish | 10. Crew boat | 14. Wave buoy | 17. Current turbine |
| 3. Scuba Diver | 7. (5) Shells | 11. Wind turbine | 15. (2) Schools of Fish | 18. Shellby |
| 4. Turtle | 8. Fish Bones | 12. Pelican | | |



**NATIONAL OCEAN
INDUSTRIES ASSOCIATION**



MINERALS MANAGEMENT SERVICE



**NATIONAL ENERGY
EDUCATION DEVELOPMENT**

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