

Super Structures

Fiona Undrill

Read and discover all about super structures around the world ...

- · What are dams made of?
- · How tall can a skyscraper be?

Read and discover more about the world! This series of non-fiction readers provides interesting and educational content, with activities and project work.

Series Editor: Hazel Geatches

Audio CD Pack available

Word count for this reader: 1,200



Level 3
600 headwords



Level 5 900 headwords



Level 4
750 headwords



Level 6 1,050 headwords

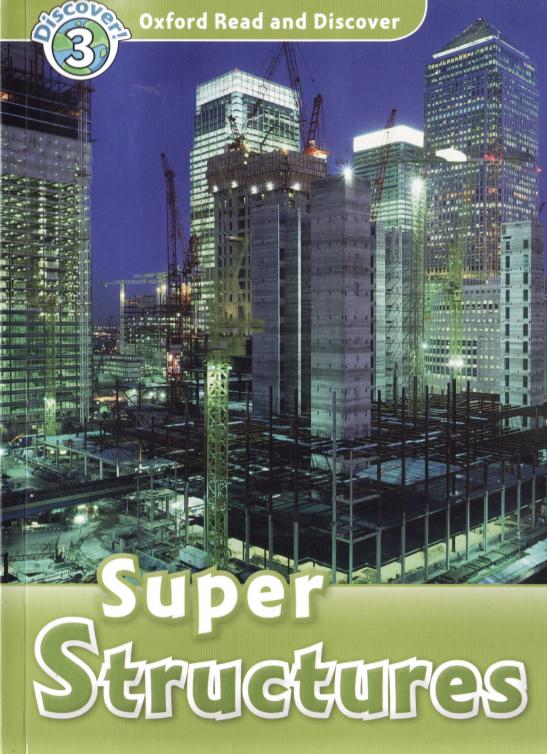
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Introduction

A structure is something made with many parts, like a house, a school, or a bridge. It can be made of different materials like bricks, concrete, glass, wood, or metal. A super structure is very big, very long, or very tall.









What structures can you see here? How many parts can you see? What are the structures made of? What other structures can you think of?

Now read and discover more about super structures!

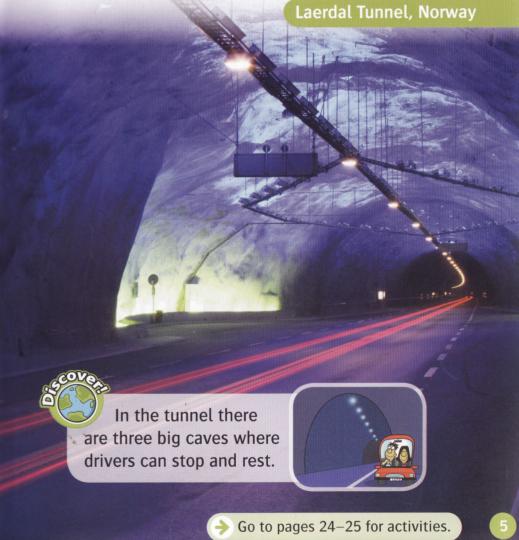


Tunnels

Tunnels go underwater, underground, or through the ground. We use tunnels for mines, trains, and road traffic, or to carry things like gas or water. Tunnels are usually made of metal and concrete.

One of the longest tunnels in the world is the Seikan Tunnel in Japan. It's nearly 54 kilometers long! It goes between two islands. It was built because it's too dangerous to travel by boat. The tunnel is for trains, but now many people prefer to travel by plane.

One of the longest road tunnels is the Laerdal Tunnel in Norway. The tunnel is nearly 25 kilometers long and it goes through a mountain. It was built because there's too much snow on the mountain roads in winter.



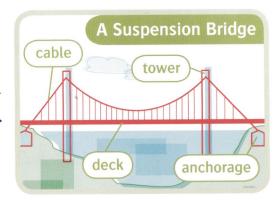


Bridges

Bridges go over water or overground.

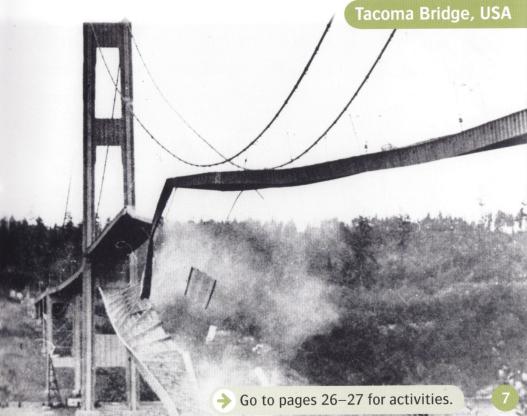
On a beam bridge, the pillars carry the deck. One of the longest beam bridges is the Lake Pontchartrain Causeway in the USA. This bridge is about 38 kilometers long and it has over 9,000 concrete pillars. It goes over water and carries road traffic.

On a suspension bridge, the cables and towers carry the deck. The anchorages hold the cables.



Suspension bridges move a little when it's windy. This isn't usually a problem, but in 1940 the Tacoma Bridge in the USA collapsed in light winds. It was only four months old.







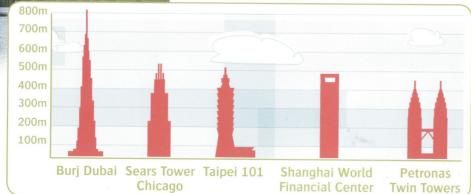
Skyserapers

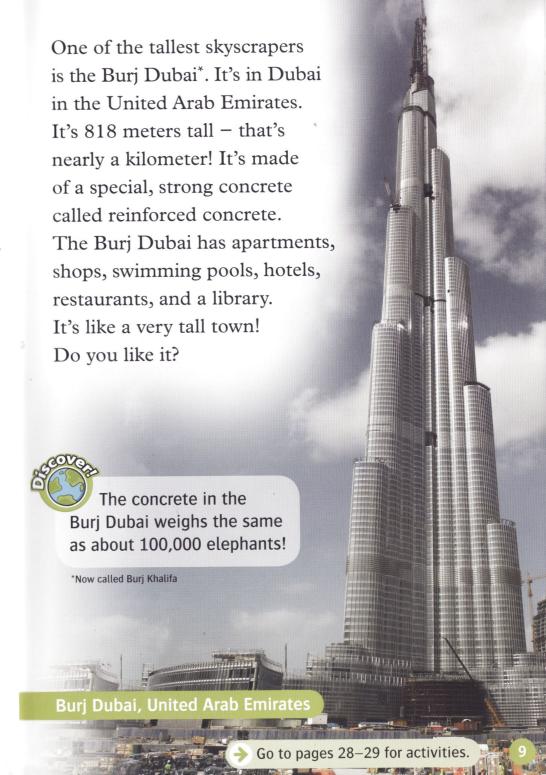
Petronas Twin Towers, Malaysia

When there isn't much ground, we can build tall buildings.

Very tall buildings are called skyscrapers. The first skyscraper was the Home Insurance Building. It was built in Chicago in the USA in 1885. It was 42 meters tall. The tallest skyscrapers are now much taller than this.

The Petronas Twin Towers in Kuala Lumpur in Malaysia are the tallest twin buildings. There is a bridge between the two towers called a skybridge.







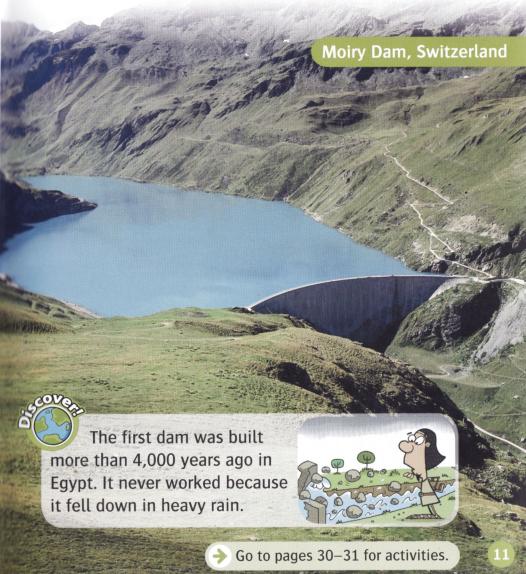
Dams

Some of the biggest structures are dams. They hold back water and make a lake called a reservoir. Dams supply water, stop floods, and they also make electricity.

Gravity dams are made of a lot of concrete. They are very big and heavy, and this weight holds back the water. The Itaipu Dam is a gravity dam. It's in South America between Paraguay and Brazil. It's 196 meters tall and nearly 8 kilometers long.

Itaipu Dam, South America

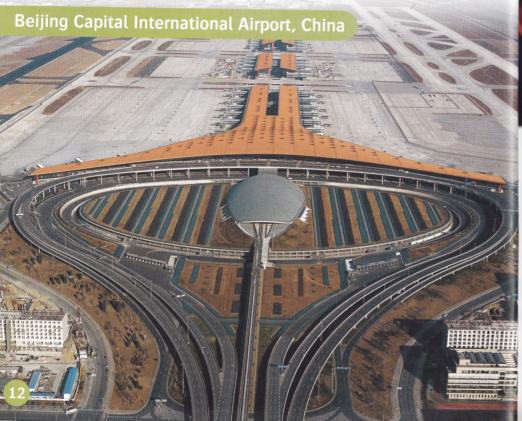
Arch dams are also made of concrete. They are usually smaller than gravity dams and they are curved. The curve holds back the water. The Moiry Dam in Switzerland is an arch dam. It's 148 meters tall and 610 meters long.

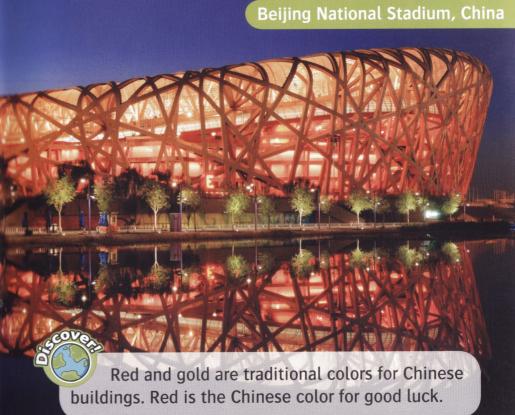




There are many super structures in Beijing in China. Some of them were built for the Olympics in 2008.

Terminal 3 of Beijing Capital International Airport is one of the biggest airport terminals in the world. The floor area is more than a square kilometer. There are seven floors, and two of the floors are underground.





The Beijing National Stadium is one of the biggest metal buildings. It's red and gold. It has 80,000 seats. There were 11,000 extra seats for the Olympics. It also has underground pipes to make it warm in winter and cool in summer.

Sometimes it's called the Bird's Nest - can you see why?



Different Shapes

With new building materials, people can build structures in many different shapes.

The O2, in London in the United Kingdom, is a dome. It was built for the millennium, the year 2000. The roof is made of a special plastic and glass material. It's 365 meters wide - one meter for every day of the year. It has also 12 support towers – one tower for every month of the year.

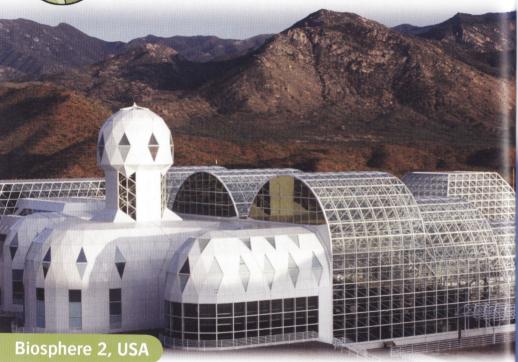


In 2008, David Fisher designed the first rotating skyscraper. It uses energy from the wind. People want to build these rotating skyscrapers in Dubai and in Moscow.

A Design for a Rotating Skyscraper Each floor can rotate a full circle. People can decide when to rotate their floor. The skyscraper can be a different shape every day! Tuesday Wednesday Monday



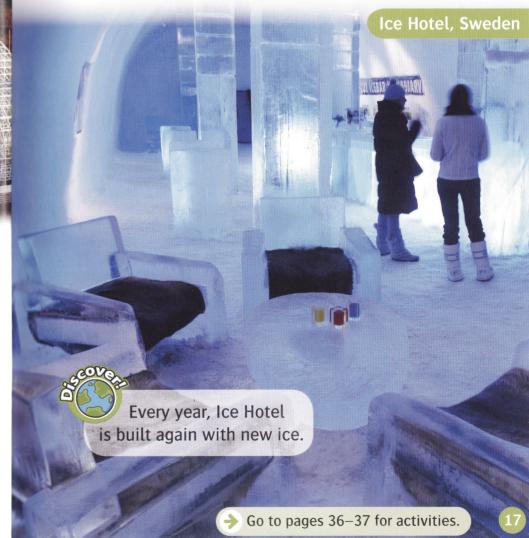
Glass and Ice



Most buildings are made of concrete, bricks, metal, or wood. Some buildings use different materials.

Biosphere 2 in Arizona in the USA is made of glass and metal. It's nearly as big as two and a half American football fields. Inside, there's a rainforest, an ocean, a desert, a farm, and places for people to live and work. It's a research center.

In a village in Sweden, near the Arctic, there is a hotel made of ice called Ice Hotel. The hotel is open from December to April. It has 80 rooms. There are ice sculptures in the rooms. The beds, chairs, and tables are also made of ice. Even the drinking glasses are made of ice!



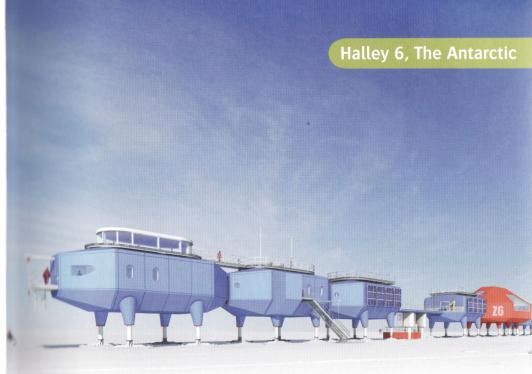


Amazing Places

Did you know that people also build structures under the ocean and on ice?

The Poseidon Undersea Resort in Fiji is a hotel 12 meters under the ocean. It's made of very strong metal and plastic. The windows are made of special, clear plastic, so people can see fish and other ocean animals from the hotel. To get to the hotel, you travel by submarine!





Halley 6 is a research station in the Antarctic. It's built on ice. The ice moves 400 meters every year and the structure moves with it. Halley 6 is on skis so people can move it back to the right place. Building in the Antarctic is very difficult because of the very, very cold weather.

In the Antarctic, the wind speed can be 150 kilometers per hour. The temperature can be less than –50 degrees centigrade.





tructures

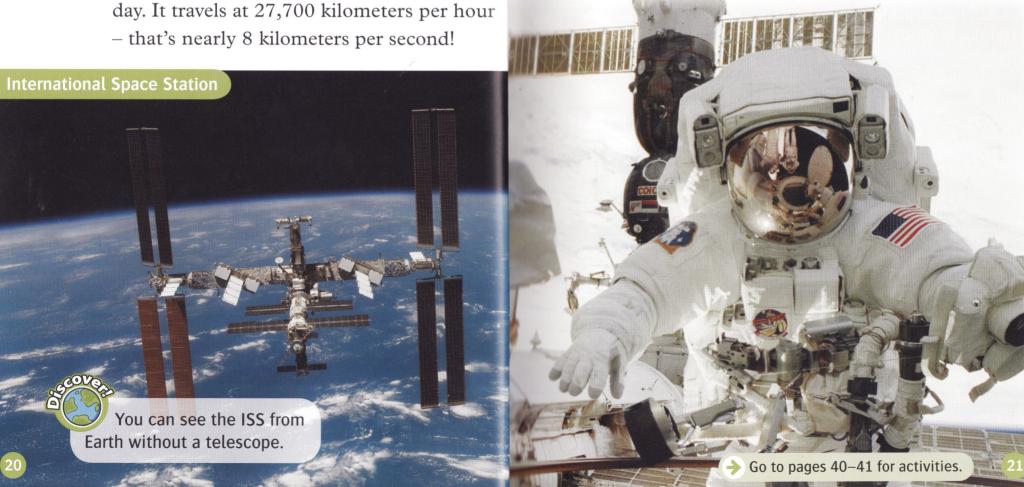
There are also structures in space. The International Space Station (ISS) is a research station. It's about 350 kilometers above Earth.



It goes around Earth about 16 times every

The ISS is made of metal. It uses energy from the sun. The first part of the ISS went into space in a rocket in 1998. No astronauts went with it. Most other parts went with astronauts. Sometimes, astronauts do a spacewalk outside the ISS to attach new parts.

An Astronaut Doing a Spacewalk

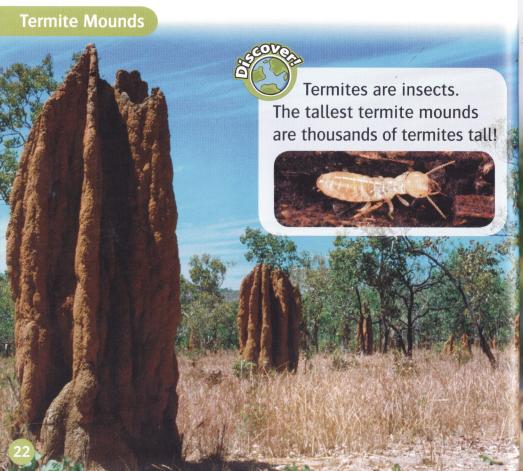




Animal Structures

Animals can build super structures, too!

Termites build their homes with mud. These homes are tall towers called termite mounds. The tallest termite mounds are about 13 meters high. They are termite skyscrapers!





Wombats build underground tunnels called burrows. They dig with their front paws and bite through things with their teeth. A wombat can dig about 2 meters per hour.



Beavers build dams on the water to protect themselves from other wild animals like bears. They build the dams with small trees, stones, and mud. Their dams can be a kilometer long.



1 Tunnels

← Read pages 4–5.

1 Match.

- 1 It was built because there's too much snow on the mountain roads in winter.
- 2 It was built because it's too dangerous to travel by boat.
- 3 It's for road traffic.
- 4 It's for trains.

Write true or false.

1 Tunnels can carry water.

true

Seikan Tunnel

Laerdal Tunnel

- 2 The Seikan Tunnel is longer than the Laerdal Tunnel.
- 3 The Laerdal Tunnel is shorter than the Seikan Tunnel.
- 4 The Seikan Tunnel goes through water.
- 5 It's quicker to use the Seikan Tunnel than to travel by plane.

Circle the correct words.

- 1 Tunnels go under / over water or ground.
- 2 Tunnels are made of metal and glass / concrete.
- 3 The Seikan Tunnel is in China / Japan.
- 4 The Laerdal Tunnel is in Spain / Norway.
- 4 Complete the sentences.

through longest metal 25 kilometers under

- 1 Tunnels are usually made of <u>metal</u> and concrete.
- 2 The Seikan Tunnel is one of the _____ tunnels.
- 3 The Laerdal Tunnel is nearly ______long.
- 4 The Seikan Tunnel goes _____ the water.
- 5 The Laerdal Tunnel goes ______ a mountain.

Write A or B.



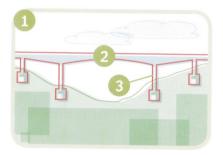


- 1 Which is the longest tunnel? A
- 2 Which tunnel goes underground? ____
- 3 Which tunnel is for trains? ____
- 4 Which is the shortest tunnel? ____
- 5 Which tunnel goes underwater? ____
- 6 Which tunnel is for cars? ____

Bridges

- Read pages 6-7.
- Circle the correct words
 - 1 Bridges go underground / overground.
 - 2 The longest / shortest beam bridge is in the USA.
 - Beam bridges and suspension bridges both have a tower / deck.
 - 4 The Tacoma Bridge is a beam / suspension bridge.
- Write the words.

cable deck pillar deck anchorage tower suspension bridge beam bridge





1	beam	bridge	
_			

5	7	À
		8

5			

Find and write the words.

g	h	b	b	r	i	d	g	e	W
a	n	С	h	0	r	a	g	е	t
h	Z	b	е	j	С	е	W	g	0
b	a	е	d	0	а	r	a	m	W
е	S	a	е	l	b	t	t	h	е
а	n	t	С	W	l	b	е	q	r
m	е	l	k	a	е	r	r	u	i
0	f	е	i	h	r	i	0	a	С
р	a	٧	S	n	g	d	m	t	е
р	i	l	l	а	r	С	n	0	a

1	b	r	4 00000	d	9	e
---	---	---	---------	---	---	---

2	W	_		_	_	
---	---	---	--	---	---	--

Answer the questions.

1 What carries the deck on a beam bridge?

The pillars carry the deck.

2	What	carries	the	deck	on	a	suspension	bridge
	VVIIGE	Cullics	CIIC	acon	011	~	Sasponsion	

3 What is a problem for suspension bridges?

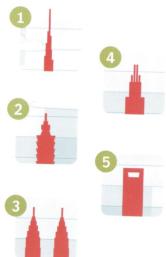
4 Which bridge collapsed when it was windy?

5 Write about a bridge in your country.

3 Skyscrapers

← Read pages 8-9.

1 Match.



Sears Tower
Petronas Twin Towers
Taipei 101
Shanghai World
Financial Center

Burj Dubai

Write the numbers.

10mm 900m 1,000m 92cm 100cm 8mm

- 1 about a centimeter <u>8mm</u>
- 2 about a meter _____
- 3 about a kilometer _____
- 4 the same as a centimeter _____
- 5 the same as a meter _____
- 6 the same as a kilometer _____

3 Comp	lete	the	sentences.
--------	------	-----	------------

- 1 The Taipei 101 is <u>shorter</u> than the Sears Tower. (short / shorter / shortest)
- 2 The Shanghai Financial Center is _____ than the Petronas Twin Towers. (tall / taller / tallest)
- 3 The Burj Dubai is the ______ skyscraper. (tall / taller / tallest)
- 4 The Sears Tower is _____ than the Taipei 101. (tall / taller / tallest)
- 5 The Sears Tower is _____ than the Burj Dubai. (short / shorter / shortest)

Answer the questions.

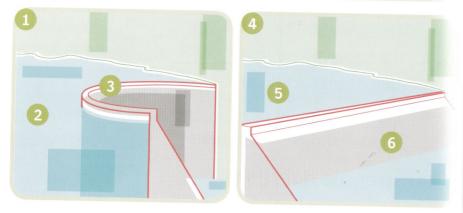
- 1 Where was the world's first skyscraper built?
- 2 How tall is the Burj Dubai?
- 3 What are the tallest twin buildings called?
- 4 What is your favorite skyscraper? Why?



← Read pages 10–11.

1 Write the words.

reservoir curve arch dam concrete gravity dam reservoir



1	4
2	5
3	6

2 Write true or false.

1	Dams	make water.	

- 2 A reservoir is like a lake.
- 3 Dams supply food.
- 4 Dams stop floods.
- 5 The Itaipu Dam is taller than the Moiry Dam.

3	Complete the puzzle.	1			
		*			
		r			3
	2->	a			¥
		i	5₩		
	1 The first dam built fell down in heavy	n			
	2 The Moiry Dam is in				
	3 Gravity dams are very				
	4 Gravity dams are made of a lot of				
	5 Arch dams are 6 →				
	6 Dams hold back			ı	

4 Answer the questions.

1	What	type	of	dam	is	the	Itaipu	Dam'	1
---	------	------	----	-----	----	-----	--------	------	---

2 Where is the Moiry Dar	2		2	where	IS	the	Moiry	Dam
--------------------------	---	--	---	-------	----	-----	-------	-----

3 With an arch dam, what holds back the water?

4 With a gravity dam, what holds back the water?

5 Write about a dam in your country.

5 Olympic Structures

← Read pages 12–13.

1 Match.

- 1 It's made of metal.
- 2 The floor area is more than a square kilometer.
- 3 It has 80,000 seats.
- 4 Sometimes it's called the Bird's Nest.
- 5 It's one of the biggest airport terminals.



National Stadium

Terminal 3



2 Circle the correct words.

- 1 Terminal 3, Beijing Capital International Airport: It's in Russia / China / the USA. It's for cars / trains / planes.
- 2 The Beijing National Stadium:
 It's like a bird's bus / nest / school.
 It's made of metal / wood / glass.
 It has underground pillars / pipes / seats.

Complete the sentences.
super metal airport terminals Olympics color
1 Red is the Chinese for good luck.
2 Many buildings were built for the in 2008.
3 Beijing has many structures.
4 Terminal 3 of the Beijing Capital International Airport is one of the biggest
5 The Beijing National Stadium is one of the biggest buildings.
Answer the questions.
1 When were the Beijing Olympics?
2 Beijing is the capital of what country?
3 What is the Chinese color for good luck?
4 What is the Beijing National Stadium made of?
5 Write about a sports stadium in your country.

6 Different Shapes

← Read pages 14–15.

1 Circle the correct words.

The 02:

- 1 It was built for the **Olympics** / **millennium**.
- 2 There are 365 months / days in a year.
- 3 There are 12 months / days in a year.

The rotating skyscraper:

- 4 It can rotate a full square / circle.
- 5 It uses energy from the sun / wind.
- 6 It can be a different floor / shape every day.

Write the months.

September June November February April July January December August May March October



1	January	7	
2		8	
3		9	
4		10	
5		11	* * *
6		12	

3 Complete the sentences.

materials skyscraper dome London day shapes

- 1 With new building ______, people can build structures in different ______.
- 2 The O2 is in ______. It's a _____.
- 3 The rotating _____ can change shape every

4 Match. Then write sentences.

The 02 —

There are 12 months

Every floor can rotate

There are 365 days

The rotating skyscraper uses

in a year.

energy from the wind.

in a year.

is a dome.

a full circle.

•



Glass and Ice

← Read pages 16–17.

1 Write the words.

bricks glass ice wood concrete metal

1



2



3



2 Write true or false.

- 1 Ice Hotel is open in January.
- 2 Ice Hotel is not open in March.
- 3 Biosphere 2 is a small town.
- 4 Biosphere 2 is made of glass and wood.
- 5 There is an ocean in Biosphere 2.
- 6 There is an ice hotel in Biosphere 2.

3 Match.

- 1 It's made of glass and metal.
- 2 It's made of ice.
- 3 It's in Sweden.
- 4 It's in the USA.
- 5 It's a research center.
- 6 I want to go there.

Ice Hotel

Biosphere 2

4 Order the words.

- 1 Ice / Hotel / made / is / ice. / of Ice Hotel is made of ice.
- 2 again. / year / Hotel / is / Every / Ice / built
- 3 open / It / from / is / April. / December / to
- 4 drinking / glasses / ice. / The / made / of / are •
- 5 glass / made / Biosphere 2 / of / is / metal. / and
- 6 a / is / rainforest / There / in / Biosphere 2.

8 Amazing Places

- Read pages 18–19.
- 1 Match.
 - 1 It's built on ice.
 - 2 It's under the ocean.
 - 3 It moves.
 - 4 It's on skis.

Poseidon Undersea Resort

Halley 6

2 Complete the chart.

water cold skis submarine wind ice fish hotel research ocean

Poseidon Undersea Resort	# Halley 6 *
water	Il Vestesio V grainab A
Valentinian, to vicinia	glass / mada / Phato
	CA Testamon Nel Nis eg
\$ \$ \$ \$	* * * *

3	Co	mplete the sentences.
	V	veather under on plastic moves
	1	The Poseidon Undersea Resort is the ocean.
	2	The windows are made of a special
	3	Halley 6 is built ice.
	4	The ice 400 meters every year.
	5	Building in the Antarctic is very difficult because of the
4	Aı	swer the questions.
	1	Where is the Poseidon Undersea Resort?
	2	Where is Halley 6?
	3	How do you get to the Poseidon Undersea Resort?
	4	How cold can it be in the Antarctic?
	5	What is your favorite structure? Why?
		• epaga ominibul est antito hay term suit. E
		Europu see the 185 hours of the 185 hours

9 Structures in Space

← Read pages 20–21.

Find and write the words.

	_	_	_					
a	S	t	r	0	n	a	u	t
f	r	r	r	t	i	b	р	S
a	0	f	е	V	r	S	t	р
е	С	u	S	h	h	t	S	a
a	k	W	е	S	d	a	0	С
r	е	0	а	u	W	t	С	е
t	t	0	r	l	i	i	k	С
h	е	X	С	n	b	0	С	d
b	d	S	h	l	t	n	l	е

1	a	_	_	_	_		

2	€	

2 Write the numbers.

27,700 8 1998 350 16

1 The ISS is kilometers above Ea	arth.
----------------------------------	-------

2 It goes around Earth about	_ times every day.
------------------------------	--------------------

- 3 It travels at _____ kilometers per hour.
- 4 It travels at _____ kilometers per second.
- 5 The first part of the ISS went into space in _____.

3	Write	the	words
3	WILLE	uie	wulus

Earth astronaut ISS



1	 3	

4 Answer the questions.

4	Where	i - + h -	ICCO
	WINER	IS THE	1//
_	VVIICIC	13 1110	100.

\mathbf{a}	NA/	hat	ic	tha	ISS?
/	VV	паг	15	me	133!

3	When	did	the	first	part	of	the	ISS	go	into	space?
---	------	-----	-----	-------	------	----	-----	-----	----	------	--------

4	How many astronauts went into space with the
	first part of the ISS?

5	Where	do	astronauts	do	spacewalks?
---	-------	----	------------	----	-------------

6 Can you see the ISS from Earth?

10 Animal Structures

Read pages 22–23.

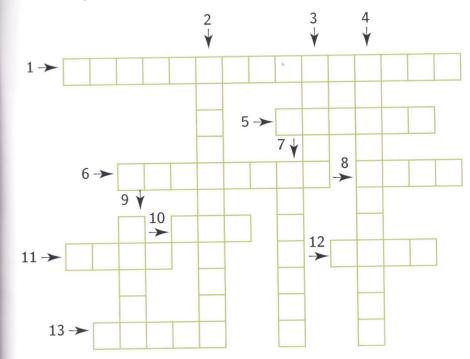
1 Write true or false.

- 1 Termites build their homes with concrete. _____
- 2 Wombats build burrows underground.
- 3 Wombats bite through things with their teeth.
- 4 Beavers build dams under the water.
- 5 Beaver dams can be a kilometer long.
- 6 There is a termite mound in my home. ____

2 Order the words.

- 1 too. / Animals / build / can / structures / super
- 2 mounds / Termite / skyscrapers. / are / termite
- 3 Wombats / about / meters / dig / hour. / per / 2
- 4 build / Termites / with / their / mud. / homes
- 5 dams / Beaver / be / long. / a / can / kilometer

3 Complete the puzzle.



- 1 It's the name of this book.
- 2 Very tall buildings are called ____.
- 3 An arch dam has a ____.
- 4 A tunnel goes here.
- 5 Beam and suspension are types of ____.
- 6 It's a strong building material.
- 7 Laerdal and Seikan are ____.
- 8 In Norway, there is a ____ through a mountain.
- 9 The Beijing National Stadium is made of ____.
- 10 It holds back water.
- 11 Bridges go ____ water.
- 12 The Pontchartrain Causeway is very ____.
- 13 Biosphere 2 is made of metal and ____.



Super Structures in My Country

1 Complete the chart about super structures in your country.

What's it called?	What type of structure is it?	How big is it?

2 Make a poster. Use pictures and write about the super structures.

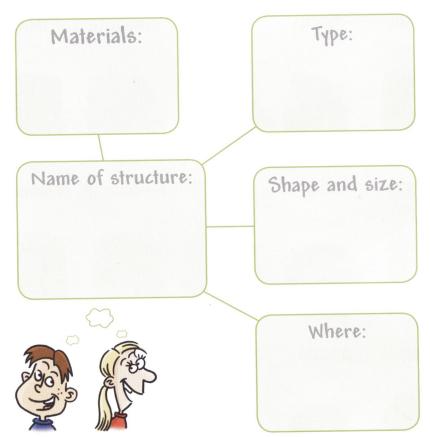
It's made of ...
It's meters tall
It was built in ...

3 Display your poster.



Design a Super Structure

- 1 Think of a super structure.
- Write notes and complete the diagram.



- 3 Draw your super structure. Write sentences to describe it.
- 4 Display your design.

Picture Dictionary





bricks



dig





bridge



concrete



dam





flood



desert





ground



ice



island



lake



metal



million



mine



mountain



mud



nest



ocean



paw



pipe



plastic







road



roof



seat



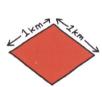
shapes







space



square kilometer



stone



submarine





telescope temperature





traffic



tunnel



wood



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Oxford Read and Discover graded readers are at four levels, from 3 to 6, suitable for students from age 8 and older. They cover many topics within three subject areas, and can support English across the curriculum, or Content and Language Integrated Learning (CLIL).

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600 headwords	 How We Make Products Sound and Music Super Structures Your Five Senses	Amazing MinibeastsAnimals in the AirLife in RainforestsWonderful Water	 Festivals Around the World Free Time Around the World
750 headwords	All About PlantsHow to Stay HealthyMachines Then and NowWhy We Recycle	All About Desert LifeAll About Ocean LifeAnimals at NightIncredible Earth	Animals in ArtWonders of the Past
900 headwords	 Materials to Products Medicine Then and Now Transportation Then and Now Wild Weather 	All About IslandsAnimal Life CyclesExploring Our WorldGreat Migrations	Homes Around the World Our World in Art
1,050 headwords	Cells and MicrobesClothes Then and NowIncredible EnergyYour Amazing Body	All About SpaceCaring for Our PlanetEarth Then and NowWonderful Ecosystems	Helping Around the World Food Around the World

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