

Exploring the Earth Pavilion

The Earth Pavilion contains exhibits about rock formation, mining, quarrying and machines. This document is one of five making up a teacher's guide to the Earth Pavilion. The exhibit list contains key questions which can be answered, investigated, or discussed. The education pack also contains a simplified plan with questions, 'Earth Pavilion Quiz', for teachers who wish to provide pupils with a directed, written task whilst visiting the pavilion. Material for reflective learning can also be collected by camera, sound recording and downloaded from Magna's website.

Type Key: h = Hands-on interactive, a = Audio-visual display, t = Touchscreen interactive

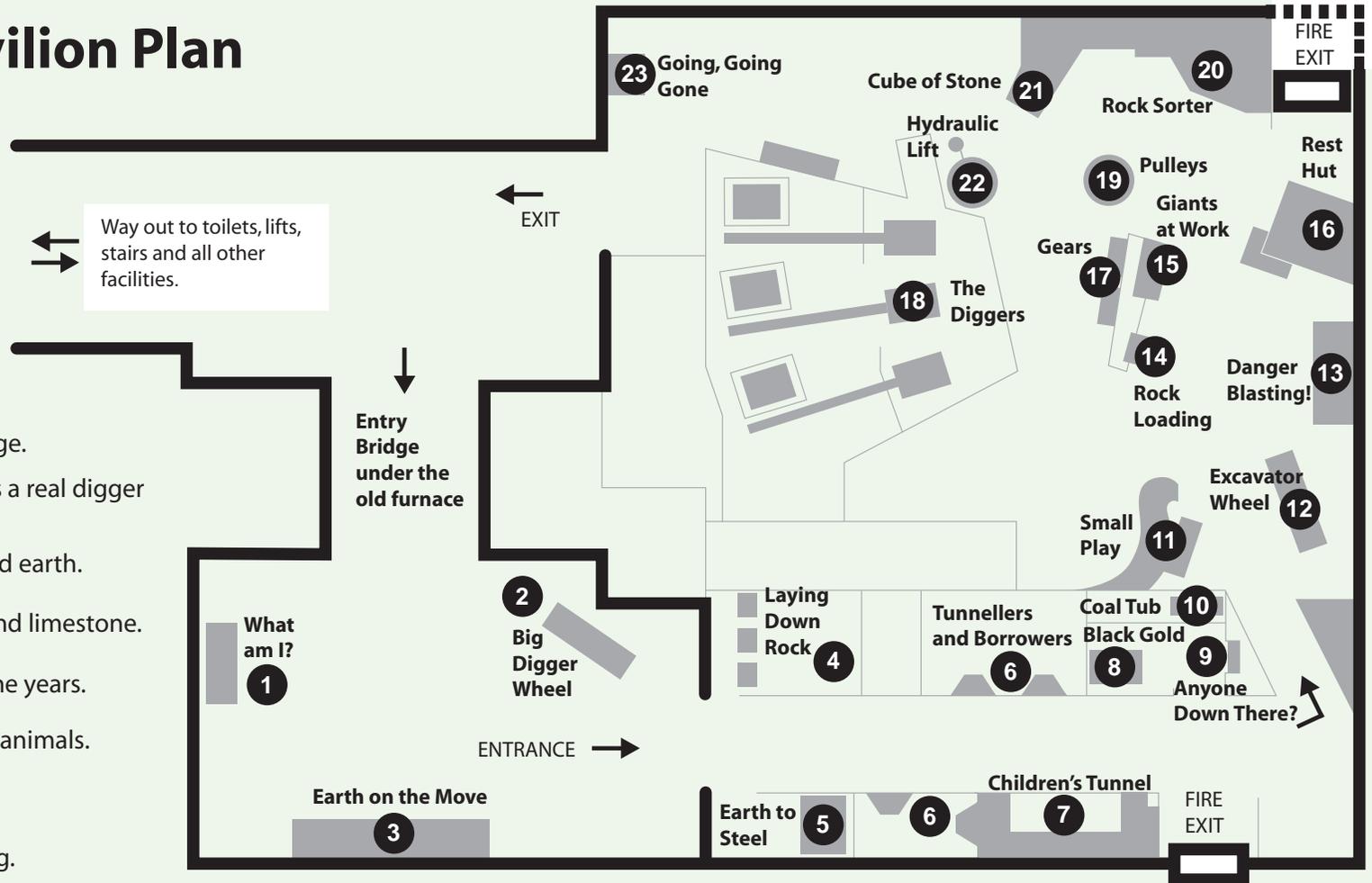
Exhibit	Type	Question
1 What am I	h	Which animal has which camouflage?
2 Big Digger Wheel	h	Are you as big as a real JCB digger wheel?
3 Earth on the Move	a	Can you see air, earth, fire and water?
4 Laying Down Rock	h	What are iron ore, coal and limestone made from? How were they formed?
5 Earth to Steel	t	Where do the resources come from? How has the supply changed over time?
6 Tunnellers and Borrowers	a	How do animals survive underground?
7 Children's Tunnel	h	What does it feel like being in a small tunnel? What can you hear?
8 Black Gold	h	How has mining changed over time? How have conditions changed for the workers?
9 Anyone Down There?	h	What happens when you shout down the hole?
10 Coal Tub	h	What was it like to be a child working in the mines?
11 Small Play	h	How does a lorry move sand and rock? Why do they have big wheels?
12 Excavator Wheel	a	How does the wheel work? Where do the rocks go?
13 Danger Blasting!	h	What happens before the explosion? What happens when you push the plunger?

Exhibit	Type	Question
14 Rock Loading	h	Where do you take the rocks to? Why is a wheelbarrow useful?
15 Giants at Work	a	How are these machines adapted to working in the quarry?
16 Rest Hut	a	How do people protect themselves from noisy environments?
17 Gears	h	Which gears have more teeth? How does their arrangement change the effort required?
18 The Diggers	h	How easy is it to co-ordinate the controls? How is the digger arm being moved?
19 Pulleys	h	Which pulley system needs least effort?
20 Rock Sorter	h	What happens to the rocks once you've put them on the conveyor belt?
21 Cube of Stone	h	How easy was it to lift the cube of stone? How long did it take? Can you do it with bare hands?
22 Hydraulic Lift	h	How is the platform raised? Can you lift your friends?
23 Going, Going Gone	t	How will our lives change with fuel shortage? What are the consequences of overuse?





Earth Pavilion Plan



- 1 What am I? - animals and camouflage.
- 2 Big Digger Wheel - are you as big as a real digger wheel.
- 3 Earth on the Move - ice, fire, rock and earth.
- 4 Laying Down Rock - coal, iron ore and limestone.
- 5 Earth to Steel - smelting ore over the years.
- 6 Tunnellers & Borrowers - knee high animals.
- 7 Children's Tunnel - mind your head!
- 8 Black Gold - a brief history of mining.
- 9 Anyone Down There? - shout down and listen out.
- 10 Coal Tub - practice your pushing and pulling.
- 11 Small Play - dig and move in the sand.
- 12 Excavator Wheel - Where do the rocks go?
- 13 Danger Blasting! - blast the rock face.
- 14 Rock Loading - off the belt and into the hopper.
- 15 Giants at Work - big rocks need big machines.

- 16 Rest Hut - time for a break.
- 17 Gears - turn the wheels and lock the teeth.
- 18 The Diggers - take a seat and get digging.
- 19 Pulleys - a little effort goes a long way.
- 20 Rock Sorter - keep those rocks moving.

- 21 Cube of Stone - chains, ratchets & pulleys.
- 22 Hydraulic Lift - jack them up, and down.
- 23 Going, Going, Gone - vanishing resources.



Curriculum Links in the Earth Pavilion

This document is one of five making up a teacher's guide to the Earth Pavilion. 'Exploring the Earth Pavilion' provides a list of questions to focus exploration and promote discussion about what is happening at each exhibit. Questions are open-ended to enable all ages to interact at an appropriate level. There is a quiz and answer sheet which can be used with pupils, 'Earth Pavilion Quiz', focusing on rocks and machines. The 'Earth Pavilion Plan' contains a comprehensive exhibit list, the numbering is not intended to provide a guided route around the pavilion.

The Earth Pavilion contains exhibits about rock formation, mining, quarrying and machines. Many of the exhibits also convey ideas about technology and the use of materials. Your visit to Earth has these potential links to the National Curriculum:

KS1 and KS2 Science

Materials and their Properties: Changing Materials
Physical Processes:
Forces and Motion

KS3 Science

Forces and Energy
Material Behaviour

KS1 and KS2 Art and Design

Breadth of Study:
Investigating art, craft and design

KS3 Design and Technology

Understand and Evaluate:
Reflect and evaluate on others' design work

KS1 and KS2 Learning Across the Curriculum

Creativity and Skills

KS3 Skills

Encouraging creative thinkers

Check the Earth Pavilion exhibits to see which will have most relevance to your curriculum theme. The numbers in brackets refer to the location on the Earth Pavilion plan:

Machines for Mining and Quarrying

- Big Digger Wheel(2)
- Small Play(11)
- Excavator Wheel(12)
- Danger Blasting!(13)
- Giants at Work(15)
- Gears(17)
- The Diggers(18)
- Pulleys(19)
- Rock Sorter(20)
- Cube of Stone(21)
- Hydraulic Lift(22)

Role Play Opportunities

- Children's Tunnel(8)
- Coal Tub(10)
- Anyone Down There?(9)
- Small Play(11)
- Danger Blasting!(13)
- Rock Loading(14)
- The Diggers(18)
- Rock Sorter(20)

Rock Formation and Steelmaking

- Earth on the Move(3)
- Laying Down Rock(4)
- Earth to Steel(5)

Local History and Environment

- Earth to Steel(5)
- Black Gold(9)
- Danger Blasting!(13)
- Going, Going Gone(23)
- What am I?(1)

