



RHS

Garden Wisley



rhs.org.uk/wisley

Houseplant Takeover – Plants Before Time

Time travel passport

Name:

Date:



Plants Before Time

Welcome aboard the RHS Time Machine.

Today, we embark on a journey through The Glasshouse, spanning millions of years. Buckle up as we travel to different time periods when dinosaurs roamed the Earth and enormous ferns and towering conifers dominated the landscape.

As you travel back and forth in time exploring the plant displays, you will discover the modern day descendants of prehistoric plant life and some of Earth's incredible botanical evolution.

Your time travel mission

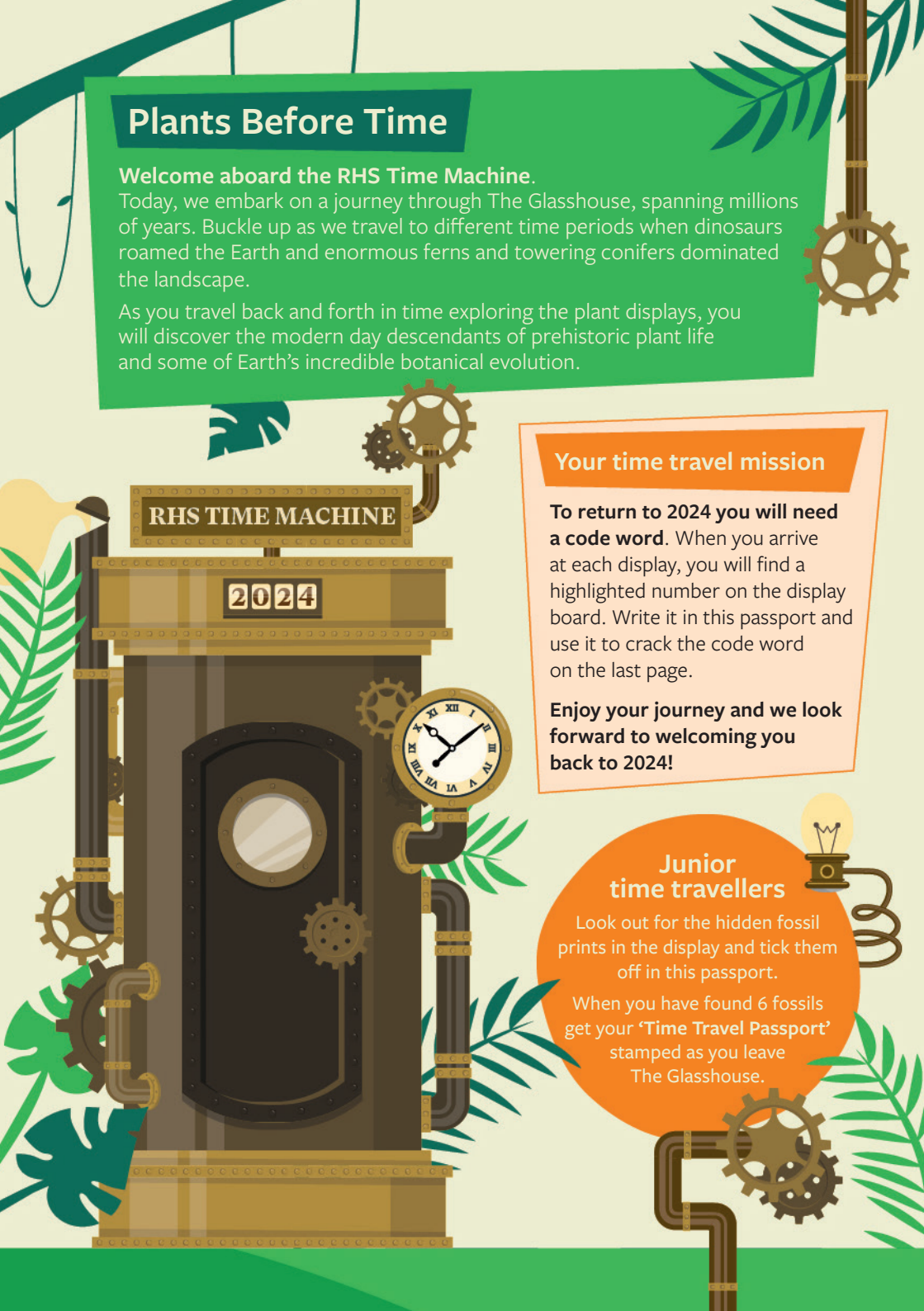
To return to 2024 you will need a code word. When you arrive at each display, you will find a highlighted number on the display board. Write it in this passport and use it to crack the code word on the last page.

Enjoy your journey and we look forward to welcoming you back to 2024!





Junior time travellers

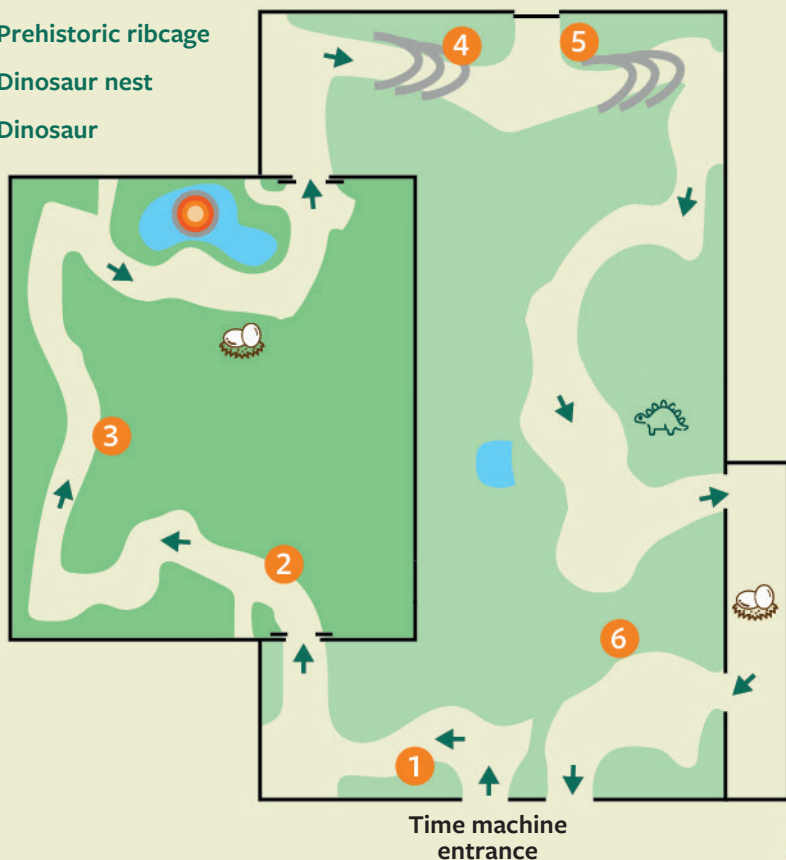
Look out for the hidden fossil prints in the display and tick them off in this passport.

When you have found 6 fossils get your 'Time Travel Passport' stamped as you leave The Glasshouse.



Time travel map

-  Volcano
-  Prehistoric ribcage
-  Dinosaur nest
-  Dinosaur



1 **Norfolk Island pine**
Araucaria heterophylla

2 **Lacy tree fern**
Sphaeropteris cooperi

3 **Staghorn fern**
Platycerium bifurcatum

4 **King protea**
Protea cynaroides

5 **Forest cycad**
Encephalartos villosus

6 **Nikau palm**
Rhopalostylis sapida

Devonian	Carboniferous	Permian	Triassic	Jurassic	Cretaceous
416 – 359 million years ago	359 – 299 million years ago	299 – 252 million years ago	252 – 201 million years ago	201 – 145 million years ago	145 – 66 million years ago

1. Carboniferous Period

You've travelled way back, around 310 million years to the warm, swampy Carboniferous Period. Abundant plant life pumped out so much oxygen that giant insects thrived. They ruled the earth and skies before dinosaurs came along.

Introducing the conifers

Conifer trees were fern look-a-likes to begin with. They had cones, but their needles and scaly leaves evolved later.

Today's living descendant

Norfolk Island pine *Araucaria heterophylla*

From Norfolk Island, between Australia and New Zealand, this relative of the monkey puzzle tree has thick, waxy leaves that protect it from sea spray. Its symmetrical pattern of branches and cone-like shape is easy to spot. It can grow to 60m in the wild, but young ones happily grow indoors and make beautiful houseplants.

Artist's impression of a swampy world 310 million years ago



© Christian Jagou Science Photo Library



Today's living descendant, Norfolk Island pine

FUN fact!

Dragonflies at this time had wingspans of up to 75cm. That's as wide as the pillow on your bed!

Can you find me?



YEAR

- 3 1 0 1 0 4 2 3

Devonian	Carboniferous	Permian	Triassic	Jurassic	Cretaceous
416 – 359 million years ago	359 – 299 million years ago	299 – 252 million years ago	252 – 201 million years ago	201 – 145 million years ago	145 – 66 million years ago

2. Triassic Period

Following the world's biggest ever extinction event, this was a new beginning for life on Earth. Conifer trees grew up to 30m tall, and dominated alongside ferns and now-extinct seed ferns. The first mammals appeared, and earliest dinosaurs, too.



FUN fact!

The trunk of the lacy tree fern has to be watered as well as the soil because this is where most of its roots are!

Artist's impression of a landscape 220 million years ago

Tree ferns make an entrance

Tree ferns evolved in the Triassic Period, from the ferns that first appeared in the Devonian Period. Like them, tree ferns used tiny spores to reproduce.

Today's living descendant

Lacy tree fern *Sphaeropteris cooperi*

This fern may have been a tasty treat for a *Diplodocus* some 50 million years later in the Jurassic Period.

Now we need to protect it against frost instead so it's grown indoors where we can still enjoy its long fronds and white, scaly new shoots.

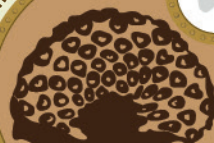


Today's living descendant, lacy tree fern



YEAR
- 2 2 0 0 1 7 0 2

Can you find me?



Devonian	Carboniferous	Permian	Triassic	Jurassic	Cretaceous
416 – 359 million years ago	359 – 299 million years ago	299 – 252 million years ago	252 – 201 million years ago	201 – 145 million years ago	145 – 66 million years ago

3. Devonian Period

Back before the dinosaurs, most of the Earth was covered by oceans. Plants had only recently made the move out of water onto land, and now animals were doing the same; they were the first amphibians.

Artist's impression of an early forest 390 million years ago



Drum roll please, for the ferns

When the first ferns appeared they were very small with pairs of flat leaves. Their spores often grow in beautiful patterns on the underside of leaves.

Today's living descendant

Staghorn fern *Platycerium bifurcatum*

Unlike its small Devonian ancestors, the staghorn fern can grow to 90cm and lives on trees. It gets its name from its antler-shaped fronds. As a houseplant, you can grow it on large pieces of bark or in wire baskets, and it needs its roots and absorbent fronds to be watered.



Today's living descendant, staghorn fern



FUN fact!

The staghorn fern is an epiphyte. That means it is a plant which lives on another plant.

Can you find me?



YEAR

- 4 0 0 0 5 3 4 0

Devonian	Carboniferous	Permian	Triassic	Jurassic	Cretaceous
416 – 359 million years ago	359 – 299 million years ago	299 – 252 million years ago	252 – 201 million years ago	201 – 145 million years ago	145 – 66 million years ago

4. Cretaceous Period

In the age of the giants, dinosaurs grew up to 37m long – the length of three buses! Conifers, ferns and cycads thrived, but the big news was that flowers were in bloom, and becoming more widespread.

Proteas join the party

Proteas were one of the first types of flowering plants. They probably had tasty fruits to tempt hungry dinosaurs and help disperse their seeds. They may even have lived in Antarctica (it wasn't quite so chilly then!).

Today's living descendant

King protea *Protea cynaroides*

Looking like a crown, the king protea has the largest flowerhead of all proteas, up to 30cm across. It is only found wild in the Cape region of South Africa. It can grow in a conservatory but may need regular trimming as it can get to 1.5m tall.

Artist's impression of a landscape 80 million years ago



Today's living descendant, king protea

FUN fact!

Titanosaurs could have eaten thousands of kilograms of plants each day!



Can you find me?



YEAR
- 8 0 0 1 7 1 8

Devonian	Carboniferous	Permian	Triassic	Jurassic	Cretaceous
416 – 359 million years ago	359 – 299 million years ago	299 – 252 million years ago	252 – 201 million years ago	201 – 145 million years ago	145 – 66 million years ago

5. Permian Period

The climate turned from icy, to hot and dry. Drought-tolerant plants and rapidly evolving reptiles thrived before a mass extinction event wiped out about 90% of life.

New in town... the cycads

Cycads may look like palm trees, but they evolved long before. The Permian Period was tough but so were cycads, with protective leathery leaves and a long life cycle. It's possible they may have been toxic to animals, so despite them being common by the Jurassic Period, it's unlikely they were a popular dino snack!

Today's living descendant

Forest cycad *Encephalartos villosus*

The forest cycad probably evolved after dinosaurs died out. It was a lot shorter than its Permian ancestors, and with most of its trunk underground, its long, arching leaves are what you notice first. It grows wild in the South African understorey so enjoys filtered sunlight as a houseplant.

Artist's impression of a forest 280 million years ago

© Richard Jones Science Photo Library

© GAP Photos/David Tull
Today's living descendant, forest cycad

FUN fact!

Cycad cones are really smelly. They lure pollinators in and then get even smellier to drive them away again!

Can you find me?



YEAR

- 2 6 0 1 4 0 1 0

Devonian	Carboniferous	Permian	Triassic	Jurassic	Cretaceous
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6. Cretaceous Period

Flowering plants were getting bigger and better and, as flowers evolved, so did pollinating insects. Bees and butterflies were attracted to their scent, and it's likely that dinosaurs liked flowers too.



FUN fact!

T-Rex helped spread plant seeds in the Cretaceous Period by eating, and pooping, plant-eating dinosaurs.

Make way for the palms

Palms arrived at a busy time, with hefty competition from other flowering plants. To get the most light, they evolved a space-saving, branchless trunk with leaves bursting out of the top. The warm Cretaceous Period suited them and they are still happiest in tropical places.

Today's living descendant

Nikau palm *Rhopalostylis sapida*

The nikau palm is the southernmost naturally growing palm, from the Chatham Islands off New Zealand. Its shuttlecock shape has made it an icon in the region. This slow growing, geometric plant makes a stylish choice for a cool glasshouse.



Today's living descendant, nikau palm



Can you find me?



How do we know?

We can guess what the world was like a long, long time ago by looking at fossils of plants, animals and even dinosaur poop!

In the right conditions, some dead things never decay. Instead, their parts are slowly replaced by minerals and they turn to fossils. They are like a real time machine because they give us clues about what lived where and when.



Paleontologists discovering fossils that are millions of years old

Fossilised dinosaur poop, or 'coprolites', are rare and difficult to spot (they look like a brown rock-like lump!) but they tell us exactly what dinosaurs ate and which plants existed when. For example, a 66 million year old coprolite found in India contained grass – the oldest record of grass ever found.

New discoveries are increasing our understanding of prehistoric and modern plants.

Head up to RHS Hilltop, here at Wisley, to discover more amazing plant facts.

See if you can spot some fossils there too!



Fossilised fern



Artist's impression of a plant-eating Diplodocus

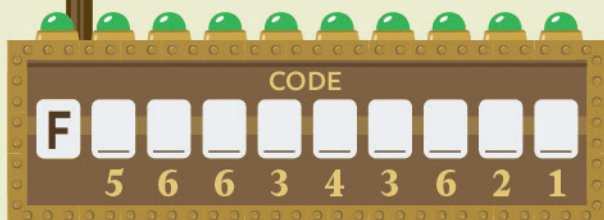
FUN fact!

Tyrannosaurus Rex was responsible for the largest coprolite found at 30cm in length and 7kg in weight.

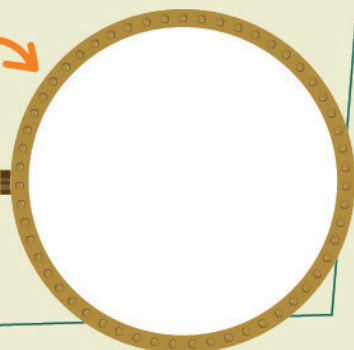
Crack the code to return to 2024

Now you have found all the highlighted numbers on the clue boards, use the cypher code below to work out the **code word** so you can **return to 2024**. Don't forget to get your passport stamped before you leave The Glasshouse. **Well done, your time travel mission is now complete.**

Get stamped here



Code key: 1=D, 2=E, 3=I, 4=L, 5=O, 6=S



Fun zone

Word search



- | | |
|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> AMMONITE | <input type="checkbox"/> PALM |
| <input type="checkbox"/> CONIFER | <input type="checkbox"/> PREHISTORIC |
| <input type="checkbox"/> DEVONIAN | <input type="checkbox"/> TIME |
| <input type="checkbox"/> DINOSAUR | <input type="checkbox"/> TRIASSIC |
| <input type="checkbox"/> FOREST | <input type="checkbox"/> TROPICAL |
| <input type="checkbox"/> FOSSIL | |

Scan to download
your make a 'plant
fossil' activity sheet



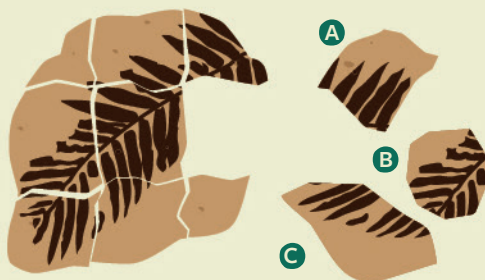
Can you find your way through the clock face maze and out the other side?

Only joking!

What do you
call a time
travelling cow?
Dr Moo!



Which missing piece completes the broken fossil?



RHS Garden Wisley dates for your diary

Giant Easter Egg Hunt

29 March – 14 April

Search for the enormous eggs designed by the 2023 competition winners hidden around the garden, and join family seed planting and craft sessions in the Clore Learning Centre.

Spring Ornamental Plant Competition

6 – 7 April

Hilltop Garden Room, RHS Garden Wisley
11.30am to 5pm (6 April) and 9am to 5pm (7 April). Celebrate spring with these colourful competitions for rhododendrons, camellias, magnolias and many more spring flowering trees and shrubs. If you would like to join in, the competitions are open to all and free to enter. Please contact the competition manager: georginabarter@rhs.org.uk

The Daffodil Show

9 – 10 April

Hilltop Garden Room, RHS Garden Wisley,
12pm – 5pm (9 April) and 10am to 5pm (10 April)
Over 100 classes in this competition that celebrates all shapes, sizes and colours of daffodils, from miniatures to doubles and pinks, to more traditional yellow. If you would like to join in, the competitions are open to all and free to enter. Please contact the competition manager: georginabarter@rhs.org.uk

Spring Craft Fair

2 – 6 May

Visitors will be able to view and purchase contemporary craft and art whilst enjoying the beautiful spring garden with its huge plant collection. Once again, alongside the marquees displaying and selling the work of some of the UK's finest designer makers, the event will incorporate demonstrating artists, a food village and live music!

Bonsai Show

4 – 5 May

Visitors can enjoy the beautiful late spring-themed bonsai displays as well as the tiny accent pots that are an essential part of any bonsai show. Featuring a range of bonsai in spring bloom, there will also be advice, talks and demonstrations on bonsai care for new and experienced enthusiasts, including pruning, wiring and creating your own accent pot. Plants and bonsai equipment will be on sale as well as the wonderful handmade pots.

May Half Term

25 May – 2 June

A family event with a garden trail, daily activities and planting sessions.

For further information and events visit: rhs.org.uk/wisleywhatson

There's so much more to *discover*...

Have fun exploring all year round with free unlimited visits to our RHS Gardens when you upgrade to an RHS Membership. Prices start from just £19.*

To join, talk to us today or visit rhs.org.uk/join/4345

Your membership supports our work as a charity.

UPGRADE TO
MEMBERSHIP*
FROM JUST

£19



*Introductory offer for new members by annual Direct Debit.
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