Support for Education in Environment & Development

Activities at the Botanic Garden

University of Leicester
Botanic Garden
Contents

The following are freely photocopiable and can be adapted to your needs. If you have developed your own activity we would be very pleased to include it in future editions of this booklet. So please let us know!

**KS 1/2**

- Whole World Cake - drawings of visit (From Montrose PS)
- Leaf I Spy
- Tree Booklet
- Garden Guide (From Booth Wood PS)
- Bingo
- Photo trail + blank Botanic Garden map
- Find different leaves (From Elizabeth Woodville PS)
- Find different grasses (From Elizabeth Woodville PS)
- Whole World Cake word searches
- Other ideas

**KS 1 only**

- Elmer

**KS 2 only**

- Fibonacci
- Rainforest Survival
Notes on activities

Tree Booklet
The measuring part on 'Information about my tree' would need to be blanked out for KS1.

Photo trail
For younger children each group can tick in the boxes when they find the location of each photograph. Older children could number the pictures and then place them on the correct place on the map.

Rainforest Survival
The rainforest glasshouse will only house about 10 people at once. So if you use this activity a rota will need to be arranged.

Elmer
Each group will need the Elmer sheet photocopied onto A3 card and some sellotape.
Find and draw these things from the Whole World Cake Trip

<table>
<thead>
<tr>
<th>The Rainforest</th>
<th>A Cactus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>The Giant Redwood Tree</td>
<td>Cake Ingredients</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>A Leaf</td>
<td>My Favourite Place</td>
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</tbody>
</table>
## Leaf I-Spy

Look around the arboretum part of the Garden and see if you can find these leaves

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><img src="oak.png" alt="Oak" /></td>
<td><img src="ash.png" alt="Ash" /></td>
<td><img src="horse_chestnut.png" alt="Horse Chestnut" /></td>
</tr>
<tr>
<td><img src="silver_birch.png" alt="Silver Birch" /></td>
<td><img src="walnut.png" alt="Walnut" /></td>
<td><img src="alder.png" alt="Alder" /></td>
</tr>
<tr>
<td><img src="lime.png" alt="Lime" /></td>
<td><img src="cedar.png" alt="Cedar" /></td>
<td><img src="sycamore.png" alt="Sycamore" /></td>
</tr>
<tr>
<td><img src="pine.png" alt="Pine" /></td>
<td><img src="holly.png" alt="Holly" /></td>
<td><img src="beech.png" alt="Beech" /></td>
</tr>
</tbody>
</table>

**Remember!**
Please don’t pick any leaves off trees or bushes, just look at them and record them, leaving them there for the tree and others to enjoy.
Information about my tree

Is it deciduous or evergreen? _______________

Now you need a tape measure and a calculator.

Measure around the Girth (circumference) of the trunk in centimetres: _______

Now divide this number by 2.5 __________. This is about the age of the tree.

Ask member of your group to stand next to the trunk of your tree. Measure their height__________

Now stand well back so you can see the whole tree. About how many of this person would make up the height of the tree?__________

Now multiply their height by the number of times they would make up the height of the tree.____________ This is the height of the tree.
Do a bark-rubbing here

Do a leaf rubbing or drawing here
Here are six of the many things you can see at the Botanic Garden.
# Bingo

Find as many of these as you can in the Garden.

Remember to only pick things from the ground and not from plants

<table>
<thead>
<tr>
<th>something yellow</th>
<th>a green leaf</th>
<th>something pink</th>
<th>a stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>a piece of litter</td>
<td>something thin</td>
<td>something long</td>
<td>something surprising</td>
</tr>
<tr>
<td>a brown leaf</td>
<td>a feather</td>
<td>a seed</td>
<td>a piece of bark</td>
</tr>
<tr>
<td>something red</td>
<td>something with a jagged edge</td>
<td>a twig</td>
<td>something curly</td>
</tr>
<tr>
<td>something an animal has eaten</td>
<td>a yellow leaf</td>
<td>Something with two colours on</td>
<td>a cone</td>
</tr>
</tbody>
</table>
Can you find where these photographs were taken in the Botanic Garden?
(Note some of these scenes may look different in different seasons)
Try and find where these were taken. These are more challenging!
How many different leaves can you find?
(Remember only take leaves from the ground not from plants)

<table>
<thead>
<tr>
<th>A leaf with one point</th>
<th>A leaf with many points</th>
<th>A leaf with toothed edges</th>
<th>A rough, knobbly leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A smooth, shiny leaf</td>
<td>A hairy leaf</td>
<td>A leaf with several colours on</td>
<td>A sharp spiky leaf</td>
</tr>
</tbody>
</table>
How many different types of grass can you find?

<p>| | | |</p>
<table>
<thead>
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<tbody>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Find the ingredients of the Whole World Cake

pineapple  raisins
honey      banana
cocoa      lemon
milk       sugar
cherry     apple
Find the Whole World Cake ingredients

honey  cocoa
banana  oats
baking powder  milk
flour  cherry
raisins  apple
orange  lemon
sugar  margarine
pineapple

red  wo  p  g  n  i  k  a  b
l  pine  a  p  l  e  t  n
c  y  a  r  t  i  s  w  e  k  y  b
o  r  s  u  s  o  a  k  m  m  m
r  e  o  t  u  r  l  o  y  i  s
a  e  h  l  g  r  g  a  n  l  r  n
n  h  u  f  p  t  y  a  k  t  o  i
g  c  f  r  a  p  i  g  r  g  a  s
er  r  o  a  n  a  n  a  b  t  i
s  b  c  n  e  c  o  c  y  h  s  a
p  o  m  h  o  n  e  y  u  u  s  r
c  v  e  n  i  r  a  g  r  a  m  s
Other ideas

1) Sketching
This can be inside, outside or both, with or without a theme...
Need: paper, pencils, clipboards

2) Design an ‘I’m going on a Bear Hunt’ photo trail around the Garden
For development as a literacy activity back at school take photos in groups of different places we could travel on the bear hunt - through the trees, by the pond, over the grass...
Need: cameras

3) Barnaby Bear
In groups take photographs of Barnaby Bear or another soft toy in different places around the garden.
Need: cameras, Barnaby Bear / soft toys

4) Sculptures
Collect cones, leaves, feathers etc. from the ground and form a natural sculpture
Need: collecting bags

5) Cards
Design a set of greeting cards for the Botanic Garden. This could be of views, different plants...
This could also include picking up leaves etc. to press
Need: sketching materials or cameras, (collecting bags)

6) Colour
a) Pick up something in the garden to match a given colour
Need: colour charts
b) Form a shade progression of items e.g. light brown to dark brown
Need: card + sellotape

7) Interpretation Boards
Look at the information boards around the garden and write a list of facts or questions and answers.
Need: paper, pencils, clipboards
Stick on Elmer as many different colours as you can find.

Remember only collect items from the ground.
Fibonacci

*Visit our Fibonacci pavements and then see if you can find your own Fibonacci patterns in nature.*

Fibonacci was a famous Italian mathematician who lived 1170 – 1250. He made many discoveries including a number pattern which is known as Fibonacci numbers. To find the next number in the sequence you add together the previous two. These numbers appear a lot in nature.

1) **Hopscotch**

![Hopscotch diagram]

Look at the hopscotch and write the first Fibonacci numbers

1  1  2  3  5  ___  ___  ___  ___  ___  ___

2) **Snail shell**

![Snail shell diagram]

Have a look at our snail shell paving. The Fibonacci numbers start in the middle and are based on the length of the sides of the squares.

What Fibonacci numbers can you work out by looking at the length of the sides?

1  1  2  3  ___  ___  ___  ___
3) Pine cones

The third pavement is of a pinecone from above.

Jump around the pinecone spiral paving in a clockwise direction going on a different coloured slab each time. How many jumps do you make? _______

Now do it in an anti-clockwise direction. What Fibonacci number was this?________

Now find some pine cones and see if you can see the Fibonacci spirals

4) Petals on flowers

On many plants, the number of petals is a Fibonacci number: buttercups have 5 petals; lilies and iris have 3 petals; some delphiniums have 8; corn marigolds have 13 petals; some asters have 21 whereas daisies can be found with 34, 55 or even 89 petals.

Now you find some flowers and count the number of petals. Remember look at the flowers and not pick them.

Write down the Fibonacci numbers you find_________

_______________________________________________________

5) Cactus spines

Theses often show the same spirals as we have already seen on pine cones and petals but they are much more clearly visible.

Is this true? Have a look in the cactus house!
Rainforest Survival

Look around you, what can you find in the rainforest that would help you survive if you lived there?

<table>
<thead>
<tr>
<th>Shelter</th>
<th>Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>What could you use to make a shelter from?</td>
<td>Which plants could give you food?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water</th>
<th>Spices</th>
</tr>
</thead>
<tbody>
<tr>
<td>What can you find to collect water in?</td>
<td>What could be used to make your food taste nicer?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clothes</th>
<th>Medicines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which plants could be useful for making clothes?</td>
<td>What could help you if you were ill?</td>
</tr>
</tbody>
</table>
Rainforest Survival – Teacher’s Notes

A few suggestions:

**Shelter** - banana leaves  
Lianas for rope  
Mahogany tree

**Food** - pineapple, banana, avocado, rice, papaya, mango, guava, sugar, coffee & cocoa to drink

**Water** - gourds for pots, pitcher plants, also leaves can be wrapped around to form a cup

**Clothes** - Cotton, leaves, grasses

**Medicines** - quinine (for malaria), ginger (for sickness), cardamom (for cleaning teeth & digestion), turmeric (heart disease)

**Spices** - ginger, black pepper, cardamom, vanilla, turmeric, tamarind
Programmes Available

A wide range of activities and resources are available for visiting schools, youth groups and teachers. Activities that are currently staffed by us for KS1 or 2 include:

- **Whole World Cake**
  Hunt for the ingredients of the whole world Cake. Collect them from around the Garden and find out about their origins, uses and production.

- **Investigating Different Habitats**
  Compare and contrast the different habitats around the Garden including pond dipping. Use data-loggers and differentiated worksheets

- **Journeys to Christmas**
  Follow trails of coloured stars to discover the links between plants and Christmas. Make a Christmas decoration, taste some Christmas foods and uncover the secret of the Global Christmas Pudding!

- **Garden Pilgrimage**
  Bring an experiential approach to RE in a garden setting.

- **Fun with numbers**
  Bring your maths lessons to the Garden. Measure our biggest and smallest plants, interpret shapes and patterns, look for symmetry and discover how spirals are formed.

**And at the Attenborough Arboretum…**

- **Woodland Adventures**
  A series of science activities that takes place at the Attenborough Arboretum. Including tree identification, mini-beast hunting, and a story under our story tree.

CPD courses and workshops are also available.

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