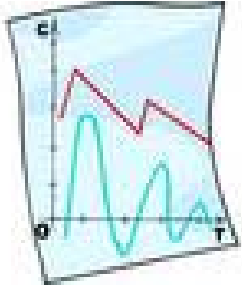


# Sustainable Development Pupils' guide



## Energy Activity 1. Fuel for Thought.



### Your task

To work out an 'Energy Profile' for your school. You will need to find how much energy your school uses during one week of the year.

### What you need

- Lighting or heating information sheets
- Pen/pencil
- Fuel for thought data sheet
- Calculator (optional)

### How to do it

1. Meet with your head teacher and building maintenance staff to find out how much fuel is used by your school to heat, cool and cook during one week – seven days. The easiest way is to pick a time on any day and take your first readings, then go back exactly a week later and take the same readings again. Subtracting the two will give you the amount you have used in a week.
2. Record the amount of energy using the following units onto the data sheet. Where you have no value, record a zero (0).



Electricity      Kilowatt Hours (kWh)



Coal      tonnes (t)



Gas      cubic metres (m<sup>3</sup>)



Wood      tonnes (t)



Oil      litres (l)



Solar      convert to electricity (KWh)



Wind      convert to electricity (KWh)



Water

# Sustainable Development Pupils' guide




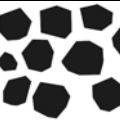



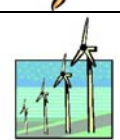



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## Fuel for Thought data sheet.

Class: \_\_\_\_\_ Week beginning: \_\_\_\_\_

Date		Start	End	Difference 7 days
	(KWh)			
	(m <sup>3</sup> )			
	(l)			
	(t)			
				
	(t)			
	(KWh)			
	(KWh)			
			Number of children	

Copy the **difference** numbers above, and the  **number of children** in the school, onto the GLOBE Sustainable Development Database.

You will need your School ID and Password.

[www.globe.org.uk](http://www.globe.org.uk)

Sustainable Development -

# Sustainable Development

## Pupils' guide



### Energy Activity 2. An efficient school?



#### Your task

To identify energy saving measures taken within your school.

#### What you need

Data sheet

#### How to do it

1. Look at the list of measures on the data sheet, discuss them with the class – can you think of any more? Add them to the list.
2. Double glazed windows help to cut down on heat loss – count the number of window panes in the school and check to see how many are double glazed.
3. Count the number of radiators in the school – check if they have thermostats. For radiators to efficiently heat a room they need space around them to allow the air to circulate – check to see how many are clear – not hidden behind cupboards or shelves.
4. Check each room around the school and record the number of energy-using appliances you find. Look for things like radios, computers, printers, TVs – anything that plugs into an electrical socket.
5. Check light fittings to see if they are clean so that the maximum amount of light is reaching the students.
6. Check to see that appliances are turned off at the wall when not in use.
7. Arrange a meeting with the caretaker and find out if the roof and walls are insulated.
8. Make a list of recommendations.

#### Further activities

Prepare a report to show the management, highlight any recommendations you have for energy saving in the school.

Carry out an energy efficiency survey at home.

Research energy efficiency – use books, leaflets and the Internet – present your findings.

Repeat the activity to see if things have improved.


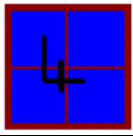

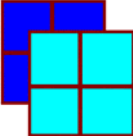



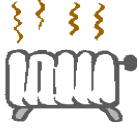






# Sustainable Development Pupils' guide



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## An efficient school? data sheet.

Date					
Total number of windows panes in the whole school			Total number of lights in the school		
Number of double glazed windows			Number of clean light fittings		
Total number of radiators in the school			Total number of electrical appliances in the school		
Number of radiators with thermostats			Number of appliances turned off at switch during lunch		
Number of radiators with space around them for circulation			Number of appliances turned off at switch after school		
Are any of the walls cavity walls?		Yes	Is the loft insulated?		Yes all
		Some			Yes some
		No			No none
Are any cavity walls insulated?		Yes			
		No			

Record **numbers** onto the GLOBE Sustainable Development database.

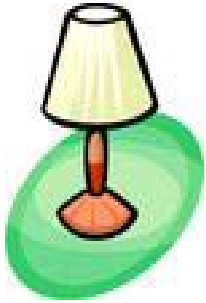
You will need your GLOBE ID and school password

# Sustainable Development

## Pupils' guide



### Energy Activity 3. How Bright is Light?



#### Your task

You are going to check the lights in the rooms at school to see if there is a way to save energy by them turning off.

#### What you need

'How bright is light' data sheet  
Pen or pencil  
Calculator

#### How to do it

1. Make a plan of the school and decide who will monitor each room.
2. Check each of your rooms and note how many lights there are.
3. Find out what type of bulb is being used in each light, you will also need to know the wattage of each bulb. You may need to ask the school premises officer to help you.
4. What is the wattage of each bulb? You will need to work it out in kW.  
 $60 \text{ W} = 0.06 \text{ kW}$                        $45 \text{ W} = 0.045 \text{ kW}$
5. How long is each light on for during a day? You may need to check this yourself or recruit someone in the class to note the times. Are the lights left on at lunchtime?
6. Find out how many units of electricity are used in each room: Units = kW x hours. What is the Total for each room
7. Enter the numbers onto the GLOBE Sustainable Development database.

#### Follow up

Repeat the activity regularly.

Find out the cost of a unit of electricity – you could look at the school bill or contact the electricity company. What is the total cost of the electricity used in each room for lighting? Does electricity usage and cost change from Summer to Winter?




Can you think of ways to cut down on the electricity used for lighting at school?

Present your results for the school. Write a report or make a poster – try to encourage everyone to be aware of the electricity used for lighting. Start a 'Turn it off' campaign.

# Sustainable Development Pupils' guide



## How Bright is Light? data sheet.

Date: 	Room number: 	Number of lights in the room: 
---	--	---

Light number	Type of bulb	Wattage (kW)	Hours of use in one day	KWh (KW x hrs)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
			Total (kWh)	

Enter the **date**, **room number**, **number of bulbs** and **Total (kWh)** onto the GLOBE Sustainable Development database.

You will need your school ID and Password.

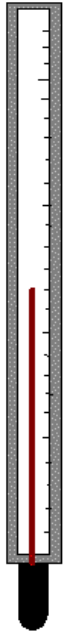
[www.globe.org.uk](http://www.globe.org.uk)

# Sustainable Development

## Pupils' guide



### Energy Activity 4. Temperature Survey.



#### Your task

To look at temperatures around the school and decide how to minimise heating bills.

#### What you need

Data sheet

Thermometers (digital or liquid filled) one for indoors and for outdoors

#### How to do it

9. Check that the outdoor thermometers are in place and calibrated using the GLOBE Temperature Protocols.
10. Decide which rooms will be monitored you will need a data sheet for each one. Or you could keep records in a note book
11. You will monitor the temperature both outside the school and in your room three times a day: at around 8:45, 12 noon and 3:15. Record the results on the data sheet.
12. You will need to work out the average number of students in the room for the day.  
  
If your class stay in the same room all day - simply add up the number of people in class today and record that as the average number of occupants.  
  
If you move around for different lessons during the day – ask the teacher to record the number of occupants in the room during each lesson, then work out the average for the day.
13. At the same time record for each lesson whether the heating is on and whether any windows are open.
14. Prepare a report for the school management highlighting your recommendations.

#### Further activities

Repeat the activity at different times of year.

Produce some charts to display the results for each classroom

Prepare a display to inform the school about your findings and highlight energy saving tips.

# Sustainable Development Pupils' guide



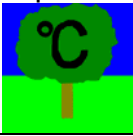
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## Temperature Survey data sheet.


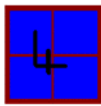
<b>Date</b>	
-------------	--

<b>Season</b>	Spring	Summer	Autumn	Winter
---------------	--------	--------	--------	--------

Outdoor temperature			
@ 8:45 a.m.	°C	Average outdoor temperature 	°C
@ 12 noon	°C		
@ 3:15 p.m.	°C		

Room			
Temperature @ 8:45	°C	Average room Temperature 	°C
Temperature @ 12	°C		
Temperature @ 3:15	°C		

Lesson number	1	2	3	4	5	6	7	8	9
# of occupants									
Is the heating on?									
# of windows open									

Average number of occupants / day	# 	Average number of windows open / day	
-----------------------------------	---	--------------------------------------	---

Recommendations:	
------------------	--

Record **averages** onto the GLOBE Sustainable Development database.

You will need your GLOBE ID and school password

# Sustainable Development

## Pupils' guide



### Waste Activity 1. Waste Not Want Not.



#### Your task

To find out how much waste your class throws away each week.

#### What you need

Waste not want not data sheet

Pen or pencil

Binbags

Weighing scales

Large boxes clearly labelled with the type of waste you will be collecting. Choose from: Paper / Metals / Glass / Plastics / Biodegradables / Waste Batteries / Other Waste.

#### How to do it

1. Whenever any member of your class has some rubbish to throw away, make sure that it is placed into the correct box. This includes rubbish from meal breaks.
2. At the end of every day, weigh the contents of each box, and record your answer on the recording sheet, in grams.
3. At the end of the week, add up the totals of each type of waste that your class has thrown away, and enter these figures onto the recording sheet overleaf.
4. Work out the average number of children in class during the week.
5. Enter the total weights and average number of children in the GLOBE Sustainable Development Database.

# Sustainable Development Pupils' guide








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## Waste Not Want Not data sheet.

Class: \_\_\_\_\_ Week beginning: \_\_\_\_\_

	Paper  (g)	Metal  (g)	Glass  (g)	Plastic  (g)	Organic  (g)	Batteries  (g)	Other  ? (g)	No. of pupils
<b>Mon</b>								
<b>Tues</b>								
<b>Wed</b>								
<b>Thurs</b>								
<b>Fri</b>								
<b>Total</b>								

<b>Average number of pupils</b>	
---------------------------------	--

Copy the **total numbers** and the  **average number of children** onto the GLOBE Sustainable Development Database.

You will need your school ID and Password

# Sustainable Development

## Pupils' guide



### Waste Activity 2. The Litter Pick.



#### Your task

You are going to look at the litter in your playground and decide how to reduce it.

#### What you need

The litter pick data sheet  
Litter picking gloves  
Pen or pencil  
Weighing scales

#### How to do it

1. Fill in the information about your group then weigh the bin bag from your litter bin and record its weight.
2. Carry out a litter pick in your area and weigh the litter you gathered from the ground. You might want to have separate bags for aluminium cans / plastic bottles / paper etc?
3. Enter the data onto the GLOBE Sustainable Development Database.

#### Follow up

Compare your results with those of groups in other areas of the school grounds. Write about what you find out.

How can you reduce the amount of litter on the ground?

How can you reduce the amount of waste?

Present your results on a poster and display them for the rest of the school to see. Try placing recycling bins around the school grounds and then check your data again, see if you have reduced the amount of waste.

# Sustainable Development Pupils' guide



## The Litter Pick data sheet.



Names of the people in your group				






Bin number		Date	
		Time of day litter was collected	

Total weight of litter in the bin	
-----------------------------------	--

g

Total weight of litter on the ground	
--------------------------------------	--

g

					?
g	g	g	g	g	g

Copy the **total numbers** in grams onto the GLOBE Sustainable Development Database.

You will need your school ID and Password

# Sustainable Development

## Pupils' guide



### Waste Activity 3. Packed lunches.



#### Your task

To monitor waste from packed lunches / break time snacks for the whole class.

If you cannot compost or reuse the wrappers from your lunch keep them and monitor the weight of the waste for the class at the end of the week.

#### What you need

Data sheet

Containers – bags or boxes

Weighing scales

#### How to do it

15. Set up containers in the classroom to collect all the non-biodegradable / non-reusable waste from your lunch and break snacks for a week.  
You will need separate containers for drink cartons, cans, foil and crisp bags, cellophane, plastic bags, plastic tubs, other
16. Keep all the non-biodegradable non-reusable waste from your lunch box and break time snack. Everyone in the class should collect their waste, wash it and sort in to the containers.
17. Repeat every day for a week.
18. Weigh the contents of each container at the end of the week and record on the datasheet
19. How many people are in the class? Work out the average weight for each type of waste per person.
20. Record your results onto the GLOBE Sustainable Development database.

# Sustainable Development Pupils' guide









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## Packed Lunches data sheet.

Date (Friday)	
---------------	--

Type of waste	Total Weight for week	Average weight of waste per person	Type of waste	Total Weight for week	Average weight of waste per person
Paper drink carton 			Aluminium cans 		
Foil 			Paper 		
Cellophane and Plastic 			Glass 		

Record **average weights** onto the GLOBE Sustainable Development database.

You will need your GLOBE ID and school password

# Sustainable Development

## Pupils' guide



### Waste Activity 4. Second law: Re-use



#### Your task

You are going to keep track of the number of plastic shopping bags used by you and your family. Remember the second law of cutting waste is to RE-USE (The first law is REDUCE – so use less in the first place.)

#### What you need

Pen or pencil  
Data collection sheet

#### How to do it

1. You will need to get the support of the other people in your home for this one.
2. You need to use the data sheet to keep a record of all the different types of bags used to carry any shopping home.
3. If your family only shops once or twice a week you can enter 0 for the days when you don't use any shopping bags at all.
4. Add up all the totals at the end of the week and compile a class list. Then enter your results onto the GLOBE SD database.

#### Follow Up

Repeat the activity later in the year.

Make up a poster demonstrating ideas for ways to re-use plastic shopping bags.

Contact supermarkets and shops to find out which ones offer to recycle plastic bags.

Make a list of the ways that you can influence people to re-use plastic bags or buy re-usable bags.

Compare your results with those from schools around the world. Do some countries seem to use less plastic bags? Contact schools in that country and write about what you find out.

# Sustainable Development Pupils' guide






## Second Law Data Sheet



Name:

Date:

Visits to the shop / market	Number of Plastic bags used 	Number of paper bags used 	Number for Re-usable bags used 
Mon			
Tues			
Weds			
Thurs			
Fri			
Sat			
Sun			
Totals for the week			

Totals for your class for the week:			
-------------------------------------	--	--	--

Number of children in the class:	
----------------------------------	--

Copy the **class totals** above, and the **number of children** in the class, onto the GLOBE Sustainable Development Database.

You will need your School ID and Password.

# Sustainable Development

## Pupils' guide



### Transport Activity 1. Getting to School 1.



#### Your task

To find out how pupils in your class get to school.

#### What you need

Pen or pencil  
Getting to School Data Sheet

#### How to do it

1. Use the 'Getting to School' Data Sheet. Fill in your name and today's date.
2. Survey the people in your group / class or school to find out how they usually get to school. Record the results on the data sheet and fill in the totals.
3. Enter the results onto the GLOBE Sustainable Development database.

#### Follow-up

Draw a bar chart to show the results of your survey. Don't forget to label it clearly and give it a title.

Write a paragraph about your results. Which type of transport is most / least popular? What is the modal transport in your survey?

Ask the people you surveyed why they come to school in that way. Write about what you found out.

Compare your results with those from other schools / countries. Are some results better for the environment than others?

Why is one kind of transport better for the environment than another? What are some of the impacts on the environment from car travel?

Discuss ideas in your class for reducing the number of miles travelled in cars. How can you travel to school in a more sustainable way?



# Sustainable Development Pupils' guide









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## Getting to School 1 data sheet.

Complete this frequency table for everyone in your class.

Form of transport	Tally	Frequency
 car		
 bus		
 walk		
 bus		
 tram / trolley		
 train		
? Other		

Number of people surveyed	
---------------------------	--

Copy the **frequency numbers** and the **#** number of people surveyed onto the GLOBE Sustainable Development Database. You will need your school ID and Password

# Sustainable Development

## Pupils' guide



### Transport Activity 2. Getting to School 2.



#### Your task

To find out how pupils in your class get to school.

#### What you need

Local large-scale street map (with a scale marked on).

Ruler and a piece of string

Calculator (optional)

'Getting to School' Activity 2 Data Sheet, one for the class.

#### How to do it

1. You will collect data for the journey to and from school for one day for each pupil.
2. First survey the pupils and find out every form of transport they used to get to school, and will use to go home again.
3. Use a local map and work out the distance you travel using each form of transport.
4. The distance needs to be in meters so you may need to convert it now. Remember there are 1000 m in 1 Km.
5. Enter your distances onto the 'Getting to School' Activity 2 Data Sheet.
6. As a class work out the total distances travelled each day by the class using each type of transport.
7. Enter the distances and the number of children in the class onto the GLOBE Sustainable Development database.

#### Follow-up

Work out the average for each form of transport. Divide the total distance travelled by the number of children using that form of transport. For example if the total distance walked is 4200m and 20 children walk, then each child walks an average of 210m.

How can you change your habits to increase the number of children who come to school using sustainable transport? Present your results and conclusions to the rest of the school.

# Sustainable Development Pupils' guide



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## Getting to School 2 data sheet.

Each pupil in the group should enter the distance travelled using each method of transport they use whilst coming to and from school. Distances must be in meters.

Name	Car	Bike	Walk	Bus	Tram	Train	Other	Total
	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
<b>Total distances (m)</b>								

Enter the **totals** and the **number of pupils** in the class onto the GLOBE Sustainable Development database.

# Sustainable Development

## Pupils' guide



### Transport Activity 3. Traffic Survey.



#### **Your task**

You will collect data about the traffic around your school and present your findings clearly.

#### **What you need**

Traffic Survey Data Sheet  
Pen or pencil

#### **How to do it**

1. Decide on the classifications for the traffic; you might use words like car, bicycle.
2. Write some sentences predicting what you think the results might be. Predict what type of transport you will see most.
3. Design your data collection sheet and record the time when you are doing the survey.
4. Record the transport that passes you for half an hour at your observation point, direction does not matter. Use tally marks to record each type of transport.
5. Return to your classroom and total up your tally marks to give the frequency.
6. Enter your results onto the GLOBE Sustainable Development database.

#### **Follow up**

Present your group's results.

Produce a paper database for your whole class to show the results from the traffic survey.

Review your predictions.

Present your results and your conclusions in a clear and interesting way.

# Sustainable Development Pupils' guide



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## Traffic Survey data sheet.

Start time:








Date:

End time:

Names: \_\_\_\_\_

Latitude:

Longitude:

	Tally	Frequency
 Pedestrian		
 Bicycle		
 Motorbike		
 Car		
 Van		
 Bus		
 Lorry		
Other ?		

Copy the **frequency** onto the GLOBE Sustainable Development Database. You will need your school ID and Password

# Sustainable Development

## Pupils' guide



### Biodiversity Activity 1. My Place.



#### Your task

To work out a Biodiversity Profile for your school. You will need to find out about the surroundings of your school in an area 3km x 3km. You will classify each part of your map into one of 10 different categories. You will then estimate the area of each category which will tell you what sort of place you live in.

#### What you need

A map (OS 1:25,000 sheet) and / or a GLOBE Landsat Image  
GLOBE 3Km grid  
Sticky tape/thin felt pen/pen/pencil  
Calculator (optional)

#### How to do it

1. Agree on the 3km x 3km area surrounding your school.
2. Carefully draw the outline of any major features onto the 3Km grid, such as coastline, rivers, towns, quarries. You can't give too many details because the scale is too large but you can tell us where the woods are and the houses and the parks. You could use a local OS map to help you. Ask the people in the class if they can add any details.
3. Try to tell us where different habitats are. Try to classify each type of land cover from the list and estimate how much ground it might cover in m<sup>2</sup>.
4. Remember to complete the key.
5. Use the code below, based on the GLOBE MUC definitions, to record what is present in each different area:
  - 0 Forest (trees at least 5m tall with the crowns interlocking)
  - 1 Woodland (trees at least 5m tall with crowns not touching)
  - 2 Shrubland (woody plants 0.5-5m tall covering >40% of ground)
  - 3 Dwarf shrubland (woody plants up to 0.5m; heathland)
  - 4 Grassland (un-mown grasses, sedges, rushes and wildflowers)
  - 5 Bare rocks (thin soils or sand or rocks)
  - 6 Wetland (marshes, swaps and bogs with over 40%vegetation)
  - 7 Open water (sea, lakes, ponds and rivers with <40% vegetation)
  - 8 Cultivated land (including all farmland, crops and mown grassland)
  - 9 Urban land (including towns, houses, roads and railways)
  - 10 Nature Reserve
6. Once you have checked all your area – and made sure that no part has been left out - you now need to estimate the amount of each habitat.

**IF YOU ARE UNSURE ABOUT WHAT CATEGORY TO USE, ASK!**
7. The total 3km x 3km square contains 900 ha (1 hectare = 100m x 100m). Work out the area (in ha) in each habitat category and check the total comes to 900. In addition, find out if any land in the 3km square is protected in any way – as a nature reserve, or national park, or some other land designation for nature. Record all your values in the datasheet overleaf. Where you have no value, record a zero (0).

# Sustainable Development Pupils' guide



Key																																
<input type="checkbox"/>	Forest	%																														
<input type="checkbox"/>	Wood	%																														
<input type="checkbox"/>	Shrub	%																														
<input type="checkbox"/>	Dwarf Shrub	%																														
<input type="checkbox"/>	Grass	%																														
<input type="checkbox"/>	Rock	%																														
<input type="checkbox"/>	Wetland	%																														
<input type="checkbox"/>	Open water	%																														
<input type="checkbox"/>	Cultivated	%																														
<input type="checkbox"/>	Urban land	%																														
<input type="checkbox"/>	Nature reserve	%																														
Scale 1 square = 100m <sup>2</sup>																																

This map represents a 3Km x 3 Km square centred on your school.  
Write the school name, GLOBE username and your names along the top.  
In the middle draw your school building. Then draw in the boundary of school grounds.  
Next fill in any other features that you know are within the 3Km x 3Km grid.

Send your finished map to us via email to [admin@globe.org.uk](mailto:admin@globe.org.uk)  
or by post to GLOBE, Biodiversity Map 1, Brandon Marsh Nature Centre, Brandon Lane,  
Coventry, CV3 3GW

# Sustainable Development Pupils' guide














## 'My Place' Data sheet

The people in our group are:

Date:

Record the area in hectares (ha) of each habitat.  
Remember the total of boxes must be 900

<p>Forest</p> 		<p>Wetland</p> 	
<p>Wood</p> 		<p>Open Water</p> 	
<p>Shrub</p> 		<p>Cultivated</p> 	
<p>Dwarf Shrub</p> 		<p>Urban Land</p> 	
<p>Grass</p> 		<p>Nature Reserve</p> 	
<p>Rock</p> 			

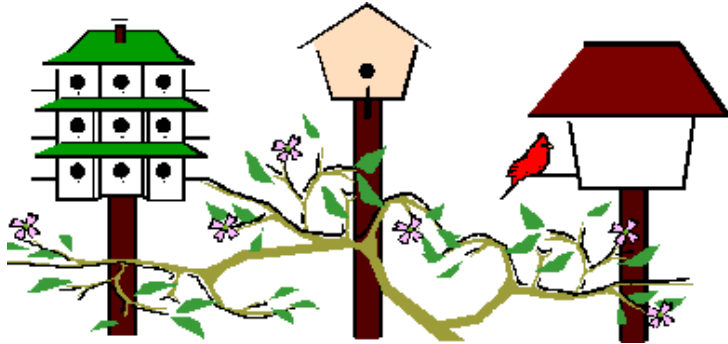
Copy the numbers onto the GLOBE Sustainable development database.

You will need you school ID and Password.

# Sustainable Development Pupils' guide



## Biodiversity Activity 2. School Grounds.



### Your task

To discover the different habitats in the school grounds

### What you need

Data sheet and pencil  
Tape measure  
Sheet of A3 paper  
Plant identification book or key

### How to do it

1. Draw the outline of the school buildings and grounds onto the A3 sheet – choose a scale that will fill the A3 sheet.
2. Work out the area (in  $m^2$ ) for the whole school including the grounds and drive way.
3. Colour the buildings black.
4. Mark on any concrete or paved areas in the school grounds – colour them grey.
5. Survey the grounds and identify as many different habitats as you can. Mark them all on your school map - try to keep to scale. Choose colours for each different habitat and remember to draw a key.

Look for

- Long grass
- Short grass
- Water – pond / stream / barrel – any water body
- Trees – mark each tree on your map and give its Latin name on the map
- Bushes and shrubs
- Bare soil / sand pit
- Log piles
- Rocks / wall
- Plants in the ground – try to name them – find out if any attract wildlife
- Plant in plant pots – try to name them – find out if any attract wildlife
- Bird boxes / bat boxes / lady bird homes
- Composter

6. Work out roughly what area each habitat takes within your school grounds (in  $m^2$ ).
7. Record your results onto the GLOBE Sustainable Development database.
8. Send your maps to GLOBE either by email – [admin@globe.org.uk](mailto:admin@globe.org.uk)


# Sustainable Development Pupils' guide








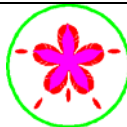








Or by post to GLOBE, Brandon Marsh Nature Centre, Brandon Lane, Coventry, CV3 3GW



## School Grounds data sheet.

School name and username:	Date of survey:	
---------------------------	-----------------	---

Habitat	Area (m <sup>2</sup> )	Habitat	Area (m <sup>2</sup> )
Short grass 		Log pile 	
Long grass 		Rocks / walls 	
Water 		Vegetable garden 	
Deciduous trees 		Flower garden 	
Evergreen trees 		Plant pots 	Number:
Bushes and shrubs 		Bird / bat boxes 	Number:
Bare soil 		Composter 	Volume:

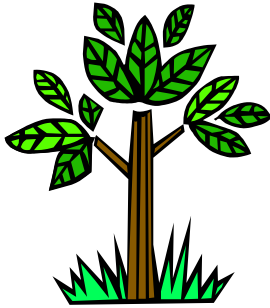
Record **numbers** onto the GLOBE Sustainable Development database.

You will need your GLOBE ID and school password

# Sustainable Development Pupils' guide



## Biodiversity Activity 3. Identifying trees.



### Your task

To identify and name all the trees in the school grounds

### What you need

Data sheet and pencil

Ruler

Copy of School Grounds map produced in Biodiversity Activity 2

Key or tree identification book

### How to do it

1. Use a copy of the map from Biodiversity Activity 2.
2. Use the tree key or ID book to identify all the trees - choose a different colour for each tree species and colour in the tree on your map.
3. Remember to draw a key on the map.
4. Record your results onto the GLOBE Sustainable Development database.
5. Send your maps to GLOBE either by email – [admin@globe.org.uk](mailto:admin@globe.org.uk)  
Or by post to GLOBE, Brandon Marsh Nature Centre, Brandon Lane, Coventry, CV3 3GW


# Sustainable Development Pupils' guide








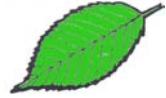




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## Tree Identification data sheet.

GLOBE username:	Date of survey: 
-----------------	---

Tree species	Number	Tree species	Number
Sycamore 		Elm 	
Horse Chestnut 		Willow 	
Beech 		Silver Birch 	
Rowan 		Cherry 	
Oak 		Alder 	
		Other <b>?</b>	

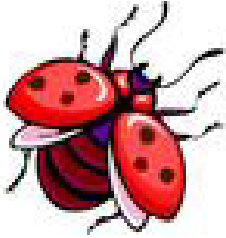
Record **numbers** onto the GLOBE Sustainable Development database.

You will need your GLOBE ID and school password

# Sustainable Development Pupils' guide



## Biodiversity Activity 4. Tree Life.



### Your task

To discover how many types of animal live in and on a tree

### What you need

A tree  
Tree key  
Pooter and / or minibeast collecting jar  
Tree beater  
Data sheet

### How to do it

1. Identify your tree.
2. Look in the canopy and record any evidence of animals that may live there.
3. Look on the trunk at the bark. Collect and identify any animals you find.
4. Hold the tree beater under a branch of the tree. Shake the branch carefully for 5 seconds.
5. Look at the animals that have fallen onto the material. Identify and record what you see.
6. Repeat with two more branches on the same tree.
7. Record your results onto the GLOBE Sustainable Development database.

# Sustainable Development Pupils' guide







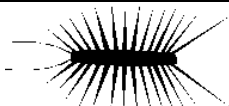


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## Tree Life data sheet.

Type of tree:		Date of sample:	
---------------	---	-----------------	---

				Other information
<b>Animals</b>	<b>Vertebrates</b>	<b>Mammals</b>		
		<b>Birds</b>		
	<b>Invertebrates</b>	<b>Insects</b>		
		<b>Arachnids(8 legs eg spiders)</b>		
		<b>Molluscs(0 legs, eg slugs)</b>		
		<b>Crustaceans (14 legs eg woodlouse)</b>		
		<b>Myriapods (14 +legs eg centipede)</b>		

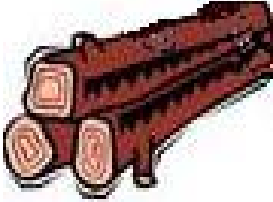
Record **numbers** onto the GLOBE Sustainable Development database.

You will need your GLOBE ID and school password

# Sustainable Development Pupils' guide



## Biodiversity Activity 5. Log piles.



### Your task

To classify the animals that live in a log pile

### What you need

A log pile  
Insect identification key  
Data sheet

### How to do it

1. Try to find out what kind of wood was used to form your log pile.
2. How long has the log pile been in place?
3. Estimate how many logs are in the pile.
4. Observe, identify and record any animals you can see on the surface.
5. Carefully lift some of the logs identify and record what you see. Remember to return the logs where you took them from.
6. Record your results onto the GLOBE Sustainable Development database.

# Sustainable Development Pupils' guide










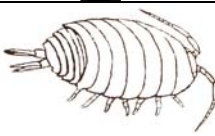
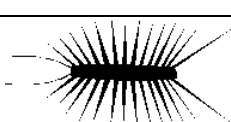
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## Log pile data sheet.

Type of logs:		Date of sample:	
---------------	---	-----------------	---

Roughly how long has the log pile been established? (years)		Roughly how many logs are in the pile?	
--	---	--	---

					Other information
<b>Animals</b>	<b>Vertebrates</b>	<b>Amphibians</b>			
		<b>Reptiles</b>			
	<b>Invertebrates</b>	<b>Insects</b>			
		<b>Arachnids(8 legs eg spiders)</b>			
		<b>Molluscs(0 legs, eg slugs)</b>			
		<b>Crustaceans (14 legs eg woodlouse)</b>			
		<b>Myriapods (14 +legs eg centipede)</b>			

# Sustainable Development Pupils' guide



Record **numbers** onto the GLOBE Sustainable Development database.

You will need your GLOBE ID and school password

## Biodiversity Activity 6. Wet wet wet wildlife.



### Your task

To discover how many types of animal live in the school pond.

### What you need

A pond or water container  
Measuring tape  
Identification key  
Data sheet  
Net

Large plastic bowl – washing up bowl works well

### How to do it

1. Draw a map of your water body to send to GLOBE – remember to mark on a scale. Mark on any plants in and around the water.
2. How long has the pond been in place?
3. Put your net into the water and slowly move through the H<sub>2</sub>O in a figure of 8.
4. Do this for five times figures of 8.
5. Empty the net into the bowl.
6. Repeat this three times.
7. Identify and count the animals in the bowl.
8. Return the animals to the pond carefully – lower the bowl to the water and tip it gently back in to the water.
9. Record your results onto the GLOBE Sustainable Development database.

### Follow up

Repeat the activity in different seasons.

# Sustainable Development Pupils' guide



Look up the life cycles and food chains for the animals you saw – present your findings in a poster.

Draw pictures of the animals you saw – send them to GLOBE

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## Wet wet wet wildlife data sheet.

Date of sample:

Area of pond	m <sup>2</sup>	Depth of pond	m
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How old is the pond?	y	What is the bank made of?
Describe the pond		

			Tally	Other information
<b>Animals</b>	<b>Amphibians</b> Eg frogs, toads, newts			
	<b>Insects: lava</b>			
	<b>Insects: nymph</b>			
	<b>Insects: adult</b>			
	<b>Arachnids</b> (8 legs eg spiders)			
	<b>Molluscs</b> (0 legs, eg slugs, snails)			
	<b>Crustaceans</b> (14 legs eg hoglouse,)			
	<b>Other</b>			

Record **information** onto the GLOBE Sustainable Development database.

You will need your GLOBE ID and school password

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### Biodiversity Activity 7. Bird Life.



#### Your task

To identify the birds that use your grounds at different times of year.

#### What you need

Data sheet and pen or pencil  
Bird identification key or book

#### How to do it

1. Split up the class into different groups and assign each group a different observation point.
2. Keep careful watch and note down every bird you see for half an hour on the data sheet. If you see the birds that do not appear on the data sheet – add them to the bottom of the list.
3. Combine your results with those of the other observers to show how many birds of each type you saw around the school.
4. Record your totals for the class onto the GLOBE Sustainable Development database.

#### Follow up

Repeat the activity in different seasons and at different times of day.

Draw pictures of the birds you saw – send them to GLOBE

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## Bird Life data sheet.

Date of sample:		Start time		End time	
-----------------	--	------------	--	----------	--

Bird		Tally	Total	Bird		Tally	Total
	blackbird				Green Finch		
	Blue tit				Jackdaw		
	Carrion crow				Long Tail Tit		
	Chaffinch				Magpie		
	Coal tit				Robin		
	Collared dove				Rook		
	Duncock				Sparrow		
	Feral pigeon				Starling		
	Gold finch				Wood Pigeon		
	Great tit				Wren		

Record **numbers** onto the GLOBE Sustainable Development database. You will need your GLOBE ID and school password

# Sustainable Development Pupils' guide



## Water Activity 1. Dripping Water Wasted.



### Your task

To calculate how much water is being wasted by dripping taps

### What you need

A note of all the dripping taps in the school.

Stop watch

Dripping water wasted Recording sheet

### How to do it

1. At each tap, time the number of drips per minute (do this 3 times)
2. Work out the average drips per minute for each tap
3. Record your values in the dripping water wasted data sheet. Then work out the total number of drips per minute from all the taps in the school.
4. Use the information collected to work out how much water is wasted by the school per minute.  
If 1 drip is 0.25 ml  
**Total water wasted per minute = 0.25 x total number of drips per minute**
5. Enter the total water wasted per minute onto the GLOBE Sustainable Development database.

# Sustainable Development Pupils' guide




## Dripping Water Wasted data sheet.



Date:

Tap number and room	Drips during first minute	Drips during second minute	Drips during third minute	Average drips per minute
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
			<b>Total number of drips per minute</b>	

Total number of drips per minute	Volume of one drip (ml)	Total volume of water lost per minute (ml)
	0.25	

Enter the **date** and **Volume of water lost per minute** onto the GLOBE Sustainable Development database.

You will need your school ID and Password.

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## Pupils' guide



### Water Activity 2. How much do you use?



#### Your task

To record all the water you use in a day.

#### What you need

Data sheet and pen  
Calibrated Containers  
Stop watch

#### How to do it

1. Make a class list of every occasion you can think of when you use water during the day. Decide on a day when everyone in the class can do the recording. Look at the recording sheet for 'How much do you use?'
2. Copy the recording sheet for yourself and add any extra categories that you can think of.
3. You will need to estimate how much water you use on each occasion in litres so it helps to familiarise yourself with the volume of some containers.

Find out how many of litres of water are held in your glass / your mug / a pan?

To figure out how much water you use when you have a wash / bath or shower use a 1 litre container and place it under the tap. Use the stop watch to see how long it takes to fill the 1 litre container.

So if your 1 litre container fills in 15 seconds  
that means you get 4 litres per minute from that tap  
So if you take a shower for 5 minutes = 4 litres x 5 minutes  
= 20 litres

4. A standard toilet uses 6 litres per flush.
5. Record the water you use for one whole day – starting when you get up in the morning and ending when you go to sleep that night. Do everything as normal – don't skip your shower just because you are keeping this record! Keep a tally to show how many times you use water in each category.
6. Add up the totals for the whole class and work out the average for each category.
7. Record your results onto the GLOBE Sustainable Development database.

#### Extra Activities

Plot a bar chart to show the water usage for everyone in the class.










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## How much do you use? data sheet.

Water use	How many times	Litres	Water use	How many times	Litres
Cold drink 			Cooking 		
Hot drink 			Cleaning teeth 		
Toilet flush 			Washing clothes 		
Hand wash 			Washing pots 		
Bath / shower 					

<b>Your individual total</b>	litres
------------------------------	--------

<b>Class total</b>	litres
<b>Number of students</b>	
<b>Average water / student</b> 	litres

Record **average water / student** onto the GLOBE Sustainable Development database.

You will need your GLOBE ID and school password

[www.globe.org.uk](http://www.globe.org.uk)

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