



## Use of the worksheets

We are very happy for you to make as many copies of the worksheets as you need, provided they are copied in full. Please contact us if you would like to share them on a website.

Please contact us at [info@womeninparenthesis.co.uk](mailto:info@womeninparenthesis.co.uk) if you have any queries about the contents of this material, and we will do our best to reply. You can also follow us on twitter (@parenthesis\_in) We'd love to see the children's work, and (with appropriate permissions and acknowledgements) to display some of the completed worksheets on our website. Please encourage them to add any additional drawing or decorations they like to make their worksheets as individual and colourful as possible.

## What's on the worksheets?

There are three worksheet levels which correspond to the education stages / ages below. Feel free to use the level which is most suited to your child or group. While level 3 aligns with KS3 curricula these are also suitable for older teenagers. For detailed notes on links to Science, Citizenship, PSHE & RE in the National Curriculum for England and Wales see **Appendix A**. If you are a teacher in another region or country and can help us to expand this table, please contact us at [info@womeninparenthesis.co.uk](mailto:info@womeninparenthesis.co.uk)

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Level	Age (guide)	English Curriculum	Scottish Primary Yr	US Grade	Irish Curriculum
1	6+	Lower KS2	P4	1 <sup>st</sup> and 2 <sup>nd</sup> Grade	1 <sup>st</sup> and 2 <sup>nd</sup> Class
2	7-11	Upper KS2	P5 & P6	3 <sup>rd</sup> – 5 <sup>th</sup> Grade	3 <sup>rd</sup> and 4 <sup>th</sup> Class
3	12-13	KS3	P7	6 <sup>th</sup> – 8 <sup>th</sup> Grade	5 <sup>th</sup> and 6 <sup>th</sup> Class

## About us

These worksheets are designed by the *In Parenthesis* project at Durham and Liverpool universities, with help from Helen Crawford. The design is by Sally Pilkington. You can read more about the project here: [www.womeninparenthesis.co.uk](http://www.womeninparenthesis.co.uk).

We have sped up the production of this material to provide activities during the Coronavirus outbreak. We hope that you find them useful.

One of the aims behind *Women In Parenthesis* is to encourage more and different kinds of thinking. A crucial part of this is encouraging women and girls to see themselves as thinkers, creators and philosophers. Can you help us by completing this short (10 minute) survey?

[Complete the survey](#)

More Information about Mary Midgley and her philosophy can be found here:  
[https://www.dur.ac.uk/library/asc/collection\\_information/midgley/midgleythemes/](https://www.dur.ac.uk/library/asc/collection_information/midgley/midgleythemes/)

## Further Reading and Links

Mary Midgley, *Gaia: The Next Big Idea*, Demos 2001 <http://www.demos.co.uk/files/gaia.pdf>

Ellie Robson, 'What is Philosophical Plumbing: Is Philosophy like Plumbing?', 2017  
<https://www.womeninparenthesis.co.uk/what-is-philosophical-plumbing-is-philosophy-like-plumbing/>

News and writing about Mary Midgley: <https://www.womeninparenthesis.co.uk/tag/mary-midgley/>

Notes From a Biscuit Tin: <https://www.notesfromabiscuittin.com/about/>

Midgley Quotes on Twitter: <https://twitter.com/MidgleyQuotes>

## The ideas

### Philosophical Plumbing

*"Plumbing and philosophy are both activities that arise because elaborate cultures like ours have, beneath their surface, a fairly complex system which is usually unnoticed, but which sometimes goes wrong. In both cases, this can have serious consequences. Each system supplies vital needs to those who live above it. Each is hard to repair when it does go wrong, because neither of them was ever consciously planned as a whole."*

Mary Midgley, in **Utopias, Dolphins, and Computers: Problems of Philosophical Plumbing** (1996)

This comparison can be taken as a summary of Midgley's whole philosophical project. It highlights her attention to looking at details for the sake of serving the 'big picture', and the importance that she placed in looking at philosophical ideas, systems, and pictures which often go unexamined.

Perhaps most of all, the idea of philosophers as plumbers conveys Midgley's conviction that they are engaged in a practice with implications for society at large. We all rely on philosophical ideas to have any understanding of the world at all. Many of these are inherited from our culture, and at times they do not serve us well. Midgley's work tackles many such ideas that she holds to be responsible for serious social, political and environmental consequences. For example, she held that the concept of Gaia was important to correct the prevailing idea of mind in contrast to the 'mere matter' of our physical environment, that the myth of 'science as salvation' led to a blinkered conception of the world and other people, and that atomistic visions and imagery of 'selfish genes' in the sciences had consequences for the social ties that allow us to live as cooperative animals in a mixed community.

### Gaia

Since the Industrial Revolution, there has been a tendency to think of the earth as a jumble of 'resources' that exists for human beings to use. Midgley strongly opposed this idea, and connected it to our tendency to damage the environment for our own short-term gain. It is this that led her to embrace Gaia theory, the idea of the earth as a living and self-sustaining organism.

*"Such a lifeless jumble would be no more capable of being injured than an avalanche would. Indeed, until quite lately our sages have repeatedly urged us to carry on a 'war against nature'. We did not expect the earth to be vulnerable, capable of health or sickness, wholeness or injury. But it turns out that we were wrong; the earth is now unmistakably sick. The living processes (or, as we say, 'mechanisms') that have so far kept the system working are disturbed, as shown, for instance, by the surge of extinctions."*

Mary Midgley, in **Gaia: The Next Big Idea** (2001)

Critics sometimes maintain that Gaia is suspiciously new-age and unscientific, using as it does the name of a Roman mother-goddess personifying the earth. Midgley's response is that all scientific views of the planet rely on a wealth of pictures and metaphors (for example, natural systems as machines) and that we need this form of imaginative poetic thinking to learn anything at all (this idea is further explored in Midgley's writing on Philosophical Plumbing). Gaia theory offers a new imaginative vision as a corrective to competing ones which no longer serve us well.

'Gaia Theory' was developed in the 1960s by the scientist James Lovelock/ The name Gaia is taken from the name of the ancient Greek goddess representing the Earth. The name was suggested to Lovelock by his friend William Golding, the author who wrote *Lord of the Flies*.

# APPENDIX A

## Biscuit Tin resources

The Gaia resources relate most closely to the Science curriculum. The Philosophical Plumbing resources relate to a wider range of subjects in the curriculum. The curriculum used here is the National Curriculum for England and Wales. The Scottish and Northern Ireland curriculums are quite different, but it is likely that many of the subjects covered will be similar.

KS = Key Stage. The colours used are just there to help show which document the curriculum elements refer to.

Document	Curriculum	Text
Gaia 1	Science KS 1 year 1 (age 5-6)	<p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>identify and name a variety of common wild and garden plants, including deciduous and evergreen trees”</li> </ul> <p>“Pupils should use the local environment throughout the year to explore and answer questions about plants growing in their habitat.”</p> <p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>identify and name a variety of common animals that are carnivores, herbivores and omnivores”</li> </ul>
	Science KS 1 year 2 (age 6-7)	<p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food”</li> </ul> <p>“Pupils should be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy... They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals.”</p>

<b>Gaia 2</b>	Science Lower KS 2 Year 3 (age 7-8)	<p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant”</li> </ul> <p>“Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction.”</p> <p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat”</li> </ul>
	Science Lower KS 2 Year 4 (age 8-9)	<p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• recognise that environments can change and that this can sometimes pose dangers to living things”</li> </ul> <p>“Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.”</p> <p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• construct and interpret a variety of food chains, identifying producers, predators and prey”</li> </ul>
	Science Upper KS 2 Year 5 (age 9-10)	<p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird”</li> </ul>
	Science Upper KS 2 Year 6 (age 10-11)	<p>“Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals”</li> </ul> <p>“Pupils might work scientifically by: observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels.”</p>

<p><b>Gaia 3</b></p>	<p>Science KS 3 Year 7-9 (age 11-14)</p>	<p>“Pupils should be taught about:</p> <ul style="list-style-type: none"> <li>• the tissues and organs of the human digestive system...</li> <li>• the mechanism of breathing to move air in and out of the lungs...</li> <li>• the dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere</li> <li>• the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops</li> <li>• the importance of plant reproduction through insect pollination in human food security</li> <li>• how organisms affect, and are affected by, their environment, including the accumulation of toxic materials</li> <li>• changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction”</li> </ul>
<p><b>Philosophical Plumbing 1</b></p>	<p>Citizenship KS 1 Year 1-2 (age 5-7)</p>	<p>“Pupils should be taught:</p> <p>a. to recognise what they like and dislike, what is fair and unfair, and what is right and wrong</p> <p>b. to share their opinions on things that matter to them and explain their views”</p> <p>“Pupils should be taught:</p> <p>a. to take part in discussions with one other person and the whole class</p> <p>b. to take part in a simple debate about topical issues</p> <p>c. to recognise choices they can make, and recognise the difference between right and wrong</p> <p>e. to realise that people and other living things have needs, and that they have responsibilities to meet them”</p> <p>“Pupils should be taught:</p>

		<p>d. about the process of growing from young to old and how people's needs change"</p> <p>"Pupils should be taught:</p> <p>b. to listen to other people, and play and work cooperatively</p> <p>c. to identify and respect the differences and similarities between people"</p> <p>Pupils should have the opportunity to:</p> <p>"g. consider social and moral dilemmas that they come across in everyday life (for example, aggressive behaviour, questions of fairness, right and wrong, simple political issues, use of money, simple environmental issues)"</p>
	<p>PSHE (Personal, Social, Health and Economic Education): Primary Year 1-6 (age 5-11)</p>	<p>"Pupils should know:</p> <ul style="list-style-type: none"> <li>the importance of respecting others, even when they are very different from them (for example, physically, in character, personality or backgrounds), or make different choices or have different preferences or beliefs"</li> </ul>
<b>Philosophical Plumbing 2</b>	<p>Citizenship KS 2 Year 3-6 (age 7-11)</p>	<p>"Pupils should be taught:</p> <p>a. to talk and write about their opinions, and explain their views, on issues that affect themselves and society</p> <p>b. to recognise their worth as individuals by identifying positive things about themselves and their achievements, seeing their mistakes, making amends and setting personal goals</p> <p>c. to face new challenges positively by collecting information, looking for help, making responsible choices, and taking action"</p> <p>"Pupils should be taught:</p> <p>a. to research, discuss and debate topical issues, problems and events</p> <p>e. to reflect on spiritual, moral, social, and cultural issues, using imagination to understand other people's experiences"</p> <p>"Pupils should be taught:</p> <p>a. that their actions affect themselves and others, to care about other people's feelings and to try to see things from their points of view</p>

		b. to think about the lives of people living in other places and times, and people with different values and customs”
	PSHE (Personal, Social, Health and Economic Education): Primary Year 1-6 (age 5-11)	<p>“Pupils should know:</p> <ul style="list-style-type: none"> <li>the importance of respecting others, even when they are very different from them (for example, physically, in character, personality or backgrounds), or make different choices or have different preferences or beliefs”</li> </ul>
<b>Philosophical Plumbing 3</b>	Citizenship KS 3 Year 7-9 (age 11-14)	<p>There is very little in this subject at KS 3 that is relevant, except perhaps this:</p> <p>“Teaching should develop pupils’ understanding of democracy, government and the rights and responsibilities of citizens. Pupils should use and apply their knowledge and understanding whilst developing skills to research and interrogate evidence, debate and evaluate viewpoints, present reasoned arguments and take informed action.”</p>

<b>All resources, especially Philosophical Plumbing</b>	RE (Religious Education)  All years Ages 5-16	<p>There is no national curriculum for RE, as local authorities and schools may choose their own syllabus. Government guidance, however, states:</p> <p>In summary, religious education for children and young people:</p> <ul style="list-style-type: none"> <li>provokes challenging questions about the meaning and purpose of life, beliefs, the self, issues of right and wrong, and what it means to be human...</li> <li>encourages pupils to explore their own beliefs (whether they are religious or non-religious), in the light of what they learn...</li> <li>teaches pupils to develop respect for others, including people with different faiths and beliefs, and helps to challenge prejudice</li> <li>prompts pupils to consider their responsibilities to themselves and to others, and to explore how they might contribute to their communities and to wider society...</li> </ul>
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## Notes

The links to resources provided in Gaia 3 are useful – it would be good if the other documents had them too, so that kids can learn stuff before being asked questions.

The Scottish curriculum frequently emphasises critical thinking, and especially the ability to weigh up different types of evidence in order to form opinions. It is possible that the Philosophical Plumbing resources

will connect better with the Scottish curriculum than that used in England & Wales, which focuses more on knowledge attainment than ways of thinking. <https://www.gov.scot/policies/schools/school-curriculum/>