ACE SCIENCE HOMEWORK TASKS WITH LEARNING LADDERS

Below is a brief introduction to the three Science Homework Task books in the series plus their contents.

It is often hard to set 'meaningful' homework tasks as it usually takes a lot of planning. These tasks have been developed to do just that: provide a range of extended homework projects from which students can get a much wider experience. We have found that many students relish the chance to 'do a project' and have a real feeling of pride with their work when they hand it in.

The key features of the ACE Science Homework Tasks:

- Extend learning outside the classroom.
- Encourage the use of science in 'real life' situations.
- Encourage independent learning.
- Encourage improvements in literacy, numeracy and ICT.
- Fit with the new 2014 KS3 Science Curriculum.
- Develop skills in working scientifically.
- Excellent preparation for Key Stage 4 assessment tasks.
- Allow parents to see not only how their children are being assessed but also the improvements in their work.

Cross-curricular opportunities

We feel that these projects could be easily adapted for such ventures and so have added some suggested links in the Teacher Notes. These tasks can be a starting point for this and we would be interested to know how people adapt and use these tasks for this part of the new Key Stage 3.

How to use these tasks

Each task is a simple open-ended task that assesses knowledge and understanding of a significant concept from the new Science National Curriculum. The tasks should be photocopied with the task sheet and the ACE Learning Ladder back-to-back or side-to-side. Teachers and learners can use the ACE Learning Ladder to guide their response to the task.

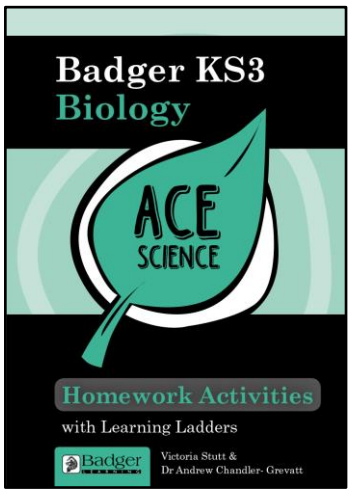
Each task is available in three level ranges: Establishing, Confident and Advanced. This allows you to differentiate appropriately.

This book contains four types of task:

- Projects
- Making and Presenting
- Mini Investigations
- Critical Thinking.

General information on how to use each task is given on 'General Guide' sheets and specific information relating to each task is given in each task's 'Teacher Notes'.

ACE SCIENCE KS3 SCIENCE HOMEWORK TASKS BIOLOGY



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PROJECT 1: TEACHER NOTES

BABY BOOKLET

NATIONAL CURRICULUM LINKS

REPRODUCTION

- reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the fetus through the placenta.

INHERITANCE, CHROMOSOMES, DNA AND GENES

- heredity as the process by which genetic information is transmitted from one generation to the next
- differences between species.

CROSS-CURRICULAR OPPORTUNITIES INCLUDE:

- English – genres of writing and creative writing
- ICT – internet searching, word processing, use of PowerPoint
- mathematics – scale.

TIME

Three homework sessions of between 30 and 60 minutes each.

ASSESSMENT, FEEDBACK AND IMPROVEMENT

Assessing these tasks should not be arduous. Rather than assigning an absolute grade, you should focus on how each student can improve. To ensure that this task is formative, students should be given the opportunity to improve their work based on the teacher's targets or through peer and self-assessment.

GUIDANCE FOR CONFIDENT (C)

Students working with confidence will demonstrate an understanding of the relationship between the structure and function of organs and cells. The role of hormones should be included in the changes at puberty and birth (naming them and recognising that they influence the changes).

We find that reading through the project using these additional prompts helps to assess the task.

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PROJECT 1: TASK SHEET (ESTABLISHING)

BABY BOOKLET

Young people have a lot of questions about the changes that occur as they grow up and need good scientific information to reassure them and help them make decisions.

Write an information booklet about the science of human reproduction and development.

Use websites, magazines and books to get information to answer each section below. Use the ACE Learning Ladder to help you do your best.

Use your own words throughout the project.

SECTION 1: GROWING UP

- Include information about the physical changes as boys and girls go through puberty.
- Describe some of the emotional changes that happen at puberty.
- Label a diagram of the reproductive system and describe the job of each part.

SECTION 2: MAKING A BABY

- Describe how humans reproduce.
- Suggest what couples should think about before deciding to have a baby.
- Draw diagrams and explain the terms 'fertilisation' and 'conception'.

SECTION 3: DEVELOPING AND BEING BORN

- Show and explain how a fetus develops in the uterus.
- Explain, simply, the role of the placenta.
- Describe how alcohol and smoking tobacco can affect the development of the fetus.
- Describe what happens at birth.

Use the Good Project Guide sheet for tips on internet safety, research and literacy.

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PROJECT 1: TASK SHEET (CONFIDENT)

BABY BOOKLET

Young people have a lot of questions about the changes that occur as they grow up and need good scientific information to reassure them and help them make decisions.

Write an information booklet about the science of human reproduction and development.

Use websites, magazines and books to get information to answer each section below. Use the ACE Learning Ladder to help you do your best.

Use your own words throughout the project.

SECTION 1: GROWING UP

- Compare the physical changes that take place at puberty in both boys and girls.
- Describe some of the emotional changes that happen at puberty.
- Draw, label and explain diagrams of the male and female reproductive system.

SECTION 2: MAKING A BABY

- Describe how humans reproduce.
- Consider the issues involved with deciding to have a baby.
- Draw diagrams and explain the terms fertilisation and conception.

SECTION 3: DEVELOPING AND BEING BORN

- Show and explain how a fetus develops in the uterus.
- Explain, simply, the role of the placenta.
- Describe how alcohol and smoking tobacco can affect the development of the fetus.
- Describe what happens at birth.

Use the Good Project Guide sheet for tips on internet safety, research and literacy.

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PROJECT 1: TASK SHEET (ADVANCED)

BABY BOOKLET

Young people have a lot of questions about the changes that occur as they grow up and need good scientific information to reassure them and help them make decisions.

Write an information booklet about the science of human reproduction and development.

Use websites, magazines and books to get information to answer each section below. Use the ACE Learning Ladder to help you do your best.

Use your own words throughout the project.

SECTION 1: GROWING UP

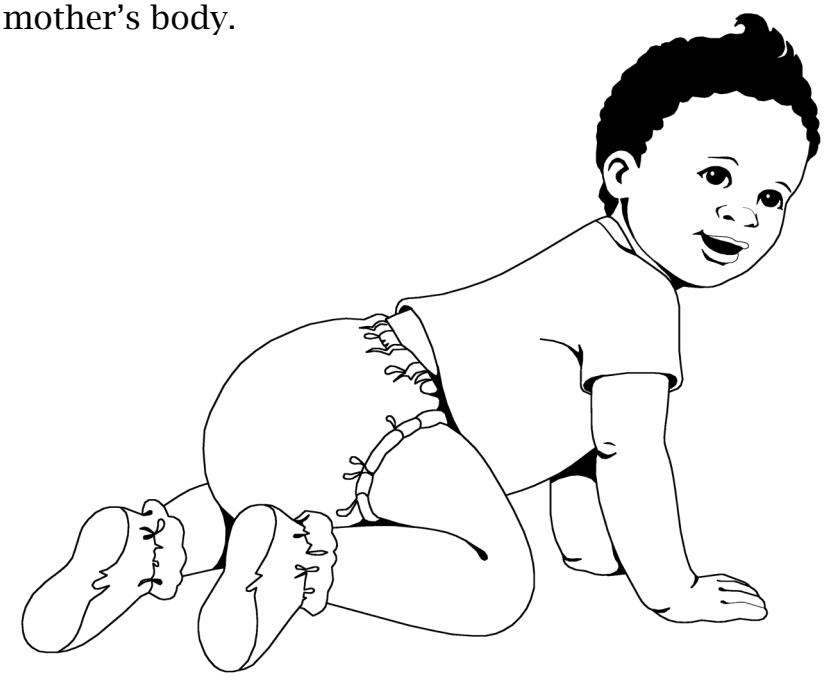
- Explain, in detail, the physical and emotional changes that take place at puberty in both boys and girls.
- Use labelled diagrams to explain the differences between the male and female reproductive systems.

SECTION 2: MAKING A BABY

- Describe how humans reproduce, explaining the terms fertilisation and conception.
- Consider the issues involved with deciding to have a baby.

SECTION 3: DEVELOPING AND BEING BORN

- Explain, in detail, the stages of pregnancy and birth, including how the unborn baby is supported by the mother's body.



Use the Good Project Guide sheet for tips on internet safety, research and literacy.

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PROJECT 1: ACE LEARNING LADDER

BABY BOOKLET

ACE LEARNING LADDER

Assessment Check	The types of things you can do:
Advanced	• Make an information booklet on human reproduction and development, drawing on detailed scientific knowledge and understanding. • Explain the stages of reproduction in the correct order, considering relative time scales. • Use detailed explanations and diagrams to show how the fetus develops. • Explain how unborn babies can be harmed while in the uterus, using data to support what you discuss, e.g. the risk to babies whose mothers smoke. • Use a range of appropriate scientific words, symbols and units accurately.
Confident	• Make an information booklet on human reproduction and development, drawing on scientific knowledge and understanding. • Explain how humans reproduce, using more than one step. • Explain how the fetus develops in the uterus. • Draw accurate diagrams to help explain the differences between the male and female reproductive system, in several sentences. • Explain the job of the placenta, the major stages of fetal development and birth using a range of keywords correctly. • Use a range of appropriate scientific words, symbols and units.
Establishing	• Make a simple information booklet about human reproduction and development, drawing on some scientific knowledge and understanding. • Give a simple description of how reproduction occurs. • Label the main parts of the female and male reproductive system. • Describe one or two changes boys and girls go through during puberty. • Name one or two substances that may harm an unborn baby. • Use some appropriate scientific words, symbols and units.