

CHARIS
SCIENCE
UNITS A1 - A9

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THE CHARIS PROJECT

The aim of the Charis Project is to promote the spiritual and moral development of pupils through the teaching of a range of subjects across the curriculum.

The Charis Project resources have been published in the following subjects: English, French, German, Mathematics and Science. Full details are available on the inside back cover.

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INTRODUCTION: THE CHARIS PROJECT

Resources for spiritual and moral development across the curriculum

What is the Charis Project all about?

Moral development in Maths and Modern Languages? Spiritual development in Science and English? Another problem or a fresh challenge? A new burden or an opportunity to enhance pupils' development? However we view the requirement for teachers to provide opportunities for spiritual and moral development through their teaching, it still remains rather uncharted waters for most of us!

So the Charis Project was born! It began with the intention to produce resources to enable subject teachers to provide opportunities for spiritual and moral development in the normal course of their lessons. The Charis Project resources are intended to complement and enhance those usually chosen to deliver the requirements of the curriculum. They provide:

- methodology for classroom practice to encourage pupils' personal development;
- content to enhance that development; and
- help for teachers to focus on the spiritual and moral dimensions inherent in their subject.

Resources for secondary school pupils

The resources have been developed by practising teachers, using their experience of what their subject requires and what will work in the classroom. The project began by producing nine books for KS4 / ages 14-16+ which were published between 1996 and 1998, in English, French, German, Mathematics and Science.

This new book is one of five further publications in the same five subjects and is suitable for KS3 / ages 11-14.

Why spiritual and moral development?

Spiritual and moral development of pupils relates to the wider concerns for the development of the whole person. This is not new - teachers have always been concerned for the personal development of their pupils. Legislation for England and Wales in 1988, required schools to "promote the spiritual, moral, cultural, mental and physical development of pupils". This was further formalised by subsequent legislation in 1992, 1996 and 1998, requiring inspectors in both 'Short' and 'Full' Inspections to report on the spiritual, moral, social and cultural development of pupils. The Charis resources particularly focus on the spiritual and moral aspects of personal development.

Spiritual and moral development of pupils is clearly a whole school issue. But it is also the responsibility of each subject teacher. It pervades all aspects of the life of the school - whether in the classroom, lessons, the playground, the assembly-hall or the bus queue. For each subject teacher, it concerns what they teach and *how* they teach it.

Curriculum aims

The requirement to promote spiritual and moral development is clearly set out in the Aims of the revised National Curriculum for England and Wales, published in November 1999. In the second of the two Aims, it says that the school curriculum should "aim to promote pupils' spiritual, moral, social and cultural development and, in particular, develop principles for distinguishing between right and wrong".

The introduction of Citizenship Education and Personal and Social Education into the secondary curriculum from 2002 has provided renewed focus on pupils' development. Many would regard the spiritual, moral, social and cultural development of pupils as being fundamental to both Citizenship Education and Personal and Social Education. Even in schools where such legislation is not applicable, teachers are giving thought to the more fundamental dimensions of education - the personal development of their pupils and the values that are both explicit and implicit in the curriculum.

Values and beliefs in education

People of various faith perspectives and of no particular religious outlook hold much in common. Values are often very widely shared. The Charis resources seek to promote these common values.

At the same time, the reasons why such values are held, the basic beliefs behind the values, differ from one perspective to another. These fundamental differences of belief lead to different total outlooks and understanding of detailed differences on what qualities, attitudes and actions are truly moral and/or spiritual.

These Charis Project resources are grounded in Christian belief; they explore spiritual and moral values, many of which may also be shared by those of other faiths or no faith. The writers believe that for young people to have an opportunity to understand the differences and the distinctives of the Christian perspective is an important element of their education and personal development. It is a very positive contribution to preparation for life in our contemporary plural society.

Professor Sir Stewart Sutherland, the former Chief Inspector of Schools in England and Wales, wrote in the 1996 Foreword to the first Charis Project resources, "The most important contribution of (the Charis) materials is to show that questions of beliefs and values do arise across the curriculum, and that to ignore that is to diminish the impact and potential of education".

The teachers in the Charis working groups hope that, by using these materials, teachers will be encouraged to develop their own resources and their own methodologies for the promotion of spiritual and moral development through their subject areas.

Alison Farnell

John Shortt

The Charis Project

Spring 2000

What exactly is the spiritual and moral development of pupils?

For pupils to develop spiritually and morally, teachers need to *provide opportunities* for development to which pupils are able to *respond*.

The guidance from curriculum and inspection authorities encourages teachers in every subject across the curriculum to create opportunities for spiritual and moral development of pupils which:

- provide pupils with knowledge and insight into values and beliefs;
- enable them to reflect on and develop their own beliefs and values, aspects of life and experiences so that they develop spiritual awareness and self-knowledge;
- encourage pupils to consider life's fundamental questions, and relate religious teaching to those questions;
- encourage pupils to explore meaning and purpose, values and beliefs;
- teach the principles which help pupils to make moral decisions and to distinguish right from wrong;
- foster values such as honesty, fairness, respect for truth, justice and property;
- encourage pupils to express moral values across issues affecting their school community;
- encourage pupils to respect other people and relate to them positively;
- encourage pupils to take responsibility, exercise initiative, participate in community and develop an understanding of citizenship;
- create opportunities to work cooperatively, and to participate cooperatively in the school community;
- teach pupils to appreciate their own cultural traditions, and the diversity and richness of others, to gain understanding of societies, families, school and communities; and
- provide opportunities to enrich pupils' cultural learning experiences.

The Charis Project resources are intended to support teachers, to some extent, with their responsibility for spiritual and moral development of pupils in their subject.

INTRODUCTION: CHARIS SCIENCE UNITS A1 - A9

1. What are the aims of the Charis Science resources?

Our aims in writing Charis Science Units A1 - A9 for pupils aged 11-14 are:

- to develop the spiritual, moral, social and cultural aspects of science; and
- to provide resources which address the new Sc1 and breadth of study requirements of the KS3 National Curriculum for Science in England and Wales.

These units of work seek to:

- promote a sense of the meaning and the wholeness of life;
- challenge materialism and self-interest as a basis for life;
- explore moral aspects of relationships, both person to person and humankind to creation;
- encourage pupils to reflect on the role and development of science;
- develop an awareness of the limits of science;
- highlight the need to consider the moral, spiritual and social implications of scientific activity;
- give pupils a view of science 'with a human face'; and
- acknowledge that science is not value-free.

2. What are the implications for the Science teacher?

Charis Science units are first and foremost science learning units with thought-provoking content. In-depth discussion of the moral and spiritual issues is not the aim nor can it be a realistic goal of science teaching at this stage of the pupils' learning. However, these units should prompt reflection and stimulate pupils' thinking, promoting opportunities for their spiritual and moral development. The units may challenge your pupils' expectations of what they can think about in a science lesson by addressing some very important issues.

Plan to integrate Charis Science units into your existing course. Use them for revision, consolidation or for presenting a new perspective on the nature of science. Some of the material can be used for homework. The units can be used at any stage with 11-14 pupils. Each unit has links with the KS3 science curriculum (Sc1, Sc2, Sc3, Sc4). They are designed to enrich and supplement existing work rather than replace it. The materials are designed to allow the teacher to use them in a variety of ways. We expect a unit to take between one and two periods of 40-50 minutes, or equivalent time in homework.

The content of some of the units may, initially, appear more difficult than that of some of the texts in regular use. However, it seeks to touch areas of pupils' lives that otherwise remain untouched in science lessons. We can expect our pupils to be interested in more than the material, superficial requirements of life.

3. How do I use the Charis Science units?

We have tried to make the units as flexible as possible. The material can be used unit by unit as the topic is taught; they can be used as revision material before module tests or examinations; or parts can be extracted and integrated into a scheme of work.

If the worksheets are used in class, it should not be necessary to provide a copy for every student - they can share sheets. Once photocopied, they can be stored for future use.

4. Won't this all be too difficult?

Whilst some of the material is targeted for able year 9 pupils, some is also aimed at weaker and younger pupils. It may be that the novelty of the content will encourage pupils to attempt material which might have been considered difficult for them. There may be a need for additional guidance from the teacher initially since teaching strategies are being used which may not be familiar in the context of science lessons - discussion, debate etc.

5. How do I judge success?

Our own experience is that pupils enjoy lessons using Charis Science units and they start to make critical judgements of the role of science in other areas of the course. Pupils also follow-up questions and want to discuss the ideas beyond the end of the lesson.

The Charis Science Team

February 2000

Unit	Title	KS3 Programme of study (National Curriculum for England and Wales)		Principle spiritual and moral aims
		Sc2; Sc3; Sc4	Sc1: scientific enquiry (S1, S2); Breadth of study (B1, B2)	
A1	DIY Earth	Sc2: Different habitats support different plants and animals.	B1c	To promote an appreciation of wonderful complexity of our planet and that we need to care for the environment.
A2	May the force be with you	Sc4: Forces and motion.	S1a, S1c	To show the conduct of science is not value-free but can be shaped by differing views of the world and life.
A3	Whodunnit?		S1a, S1b, S1c, S2a, S2l, S2m, S2o, B1d	To promote appreciation of the importance of honesty and integrity and understand the factors that can lead scientists into false claims.
A4	Art meets science	Sc3: Elements, metals from metal oxides, effects of burning fuels.	B1c	To consider the moral aspects of animal experimentation, to show that scientists display awe and wonder at their discoveries and to encourage care for the environment.
A5	Stories in stone	Sc3: Formation of different types of rocks.	S1a, S1c	To show science is a human communal activity which builds up a fallible picture of the history of the universe from partial evidence.
A6	Nature's amazing numbers	Sc3: Seed production from flowers, animals and plants. Variation and keys.	S2i	To promote wonder at patterns in nature and to stimulate reflection on how they came to be there.
A7	The elements of life	Sc3: Elements, compounds, metals, non-metals. Sc2: Balanced diets.		To challenge the use of science to promote reductionism and to set our own lives in the context of the past and the future.
A8	Just skin deep	Sc2: Adaption of cells and organisms and that bacteria affect health.	B1c	To counteract prejudice based on skin colour and image.
A9	Just what is science?		S1c, B1d	To show that science is not a neutral, value-free activity.