



English National Curriculum Problem solving

The information and activities in this issue are designed to help you teach problem-solving skills and techniques. The strategies taught at **Key Stage 2** can be used effectively to support children's work in mathematics as well as in other curriculum subjects, including English, geography, science, PSHE, and design and technology. Specific links are detailed below.

Pages 2-3 Game on!

Programme of study: mathematics

Ma2 Number

Pupils should be taught to:

- 1 a) make connections in mathematics and use numerical skills and knowledge to solve problems
- b) break down a complex problem into simpler steps
- d) find different ways of approaching a problem in order to overcome difficulties
- h) present and interpret solutions in the context of the problem
- i) communicate mathematically, including the use of precise mathematical language
- k) search for a pattern in their results, develop logical thinking and explain their reasoning.

NNS: Solving problems

QCA: PE Unit 23 – Invasion games.

Page 4-5 Talking sport

Programme of study: mathematics

Ma2 Number

Pupils should be taught to:

- 1 a) make connections in mathematics and use numerical skills and knowledge to solve problems
- b) break down a complex problem into simpler steps
- d) find different ways of approaching a problem in order to overcome difficulties
- h) present and interpret solutions in the context of the problem
- i) communicate mathematically, including the use of precise mathematical language
- j) understand and investigate general statements

- k) search for a pattern in their results, develop logical thinking and explain their reasoning.

NNS: Solving problems

QCA: PE Unit 23 – Invasion games.

Pages 6-7 Dragon's blood

Programme of study: science

Sc1 Scientific enquiry

Pupils should be taught:

- 1 b) that it is important to test ideas using evidence from observation and measurement
- c) think about what equipment and materials to use
- 2 e) use simple equipment and materials appropriately and take action to control risks
- f) make systematic observations and measurements
- j) use observations and measurements to draw conclusions.

Sc3 Materials and their properties

Pupils should be taught:

- 2 c) that temperature is a measure of how hot or cold things are
- d) about reversible changes, including melting, boiling and freezing
- 3 c) how to separate solids from liquids by filtering.

QCA link

Science Unit 4D – Solids, liquids and how they can be separated.

Pages 9-11 Moral dilemmas

Programme of study: English

En1 Speaking and listening

Group discussion



English

National Curriculum

Problem solving (continued)

Pupils should be taught to:

- 3 c) qualify or justify what they think after listening to others' accounts
- d) deal politely with opposing points of view.

Drama

Pupils should be taught to:

- 4 a) create, adapt and sustain different roles
- b) use character, action and narrative to convey themes and emotions
- c) use drama techniques to explore characters and issues.

Programme of study: PSHE

Pupils should be taught:

- 1 a) to talk about their opinions, and explain their views on issues that affect themselves and society
- 2 a) to research, discuss and debate topical issues, problems and events
- c) to realise the consequences of anti-social and aggressive behaviours
- 4 a) that their actions affect themselves and others
- g) where individuals, families and groups can get help and support
- 5 g) to consider social and moral dilemmas that they come across in life.

QCA link

Drama – Making it work in the classroom;
Citizenship Unit 2 – Choices.

Pages 12-13 Town planning

Programme of study: geography

Pupils should be taught to:

- 1 a) ask geographical questions
- d) identify and explain different views that people hold about topical geographical issues
- 2 a) use appropriate geographical vocabulary
- c) use maps and plans at a range of scales
- e) draw maps and plans at a range of scales

g) use decision making skills

3 e) identify how and why places change

5 a) recognise how people can improve the environment.

QCA link

Geography Unit 6 – Investigating our local area.

Pages 14-15 Sturdy structures

Programme of study: design and technology

Pupils should be taught to:

- 1 a) generate ideas for products after thinking about who will use them and what they will be used for, using information from a number of sources
- 2 e) use finishing techniques to strengthen and improve the appearance of a product
- 3 c) recognise that the quality of a product depends on how well it is made and how well it meets the intended purpose
- 4 a) learn how the working characteristics of materials affect the ways they are used
- 5 b) work on focused practical tasks that develop a range of techniques, skills, processes and knowledge.

QCA link

Science Unit 3C – Characteristics of materials; Unit 6E – Forces in action.

Page 16 Monkey business

Programme of study: English

En1 Speaking and listening

Pupils should be taught to:

- 1 a) use vocabulary that enables them to communicate more complex meanings
- 2 a) identify the gist of an account or key points in a discussion
- 3 a) make contributions relevant to the topic and take turns in discussion
- c) qualify or justify what they think after listening to others' questions or accounts



English

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Problem solving (continued)

d) deal politely with opposing points of view.

En2 Reading

The range should include:

8 e) texts drawn from a variety of cultures and traditions.

En3 Writing

Pupils should be taught to:

10) use writing to help their thinking and learning.

NLS:

T3 (Y3, T2); T8 (Y3, T2); T8 (Y3, T3); T1 (Y4, T3), T12 (Y4, T3).

QCA link

Citizenship Unit 2 – Choices.

