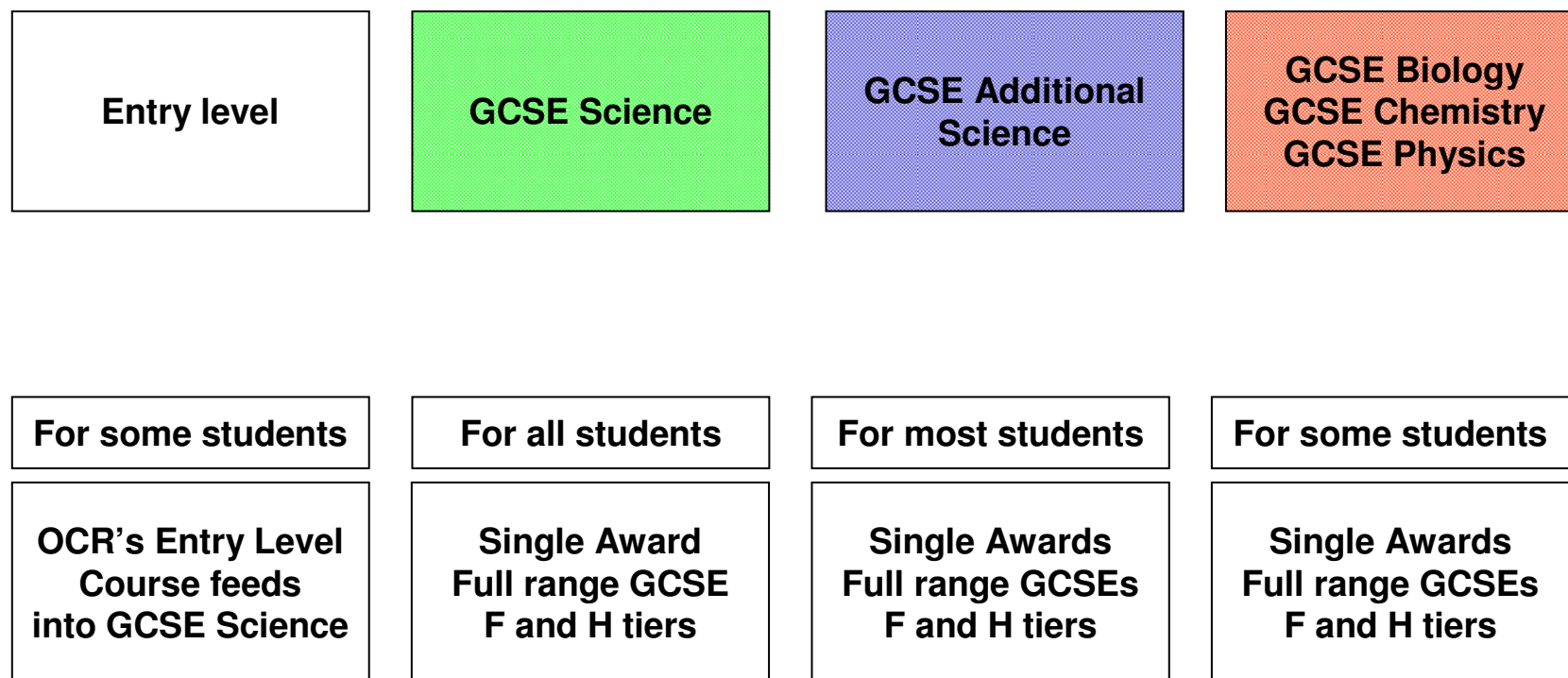


Meeting the needs and aspirations of all students

A flexible suite of courses

- ◆ What's different about each course?
- ◆ Who are they for?
- ◆ What sort of teaching activities might we use?
- ◆ How is each course structured?
- ◆ How have other schools taught it?
- ◆ What resources and support are available?
- ◆ What preparation do we need?

Suite for 2006



B1 You and your genes

- ◆ Recall that human males have sex chromosomes XY and females have sex chromosomes XX
- ◆ Understand the implications of testing embryos for embryo selection
- ◆ In the context of genetic testing (when provided with additional information about the reliability and risks of genetic tests) can:
 - say clearly what the issue is;
 - summarise different views that might be held;
 - identify and develop arguments based on the ideas that:
 - ◆ the right decision is one which leads to the best outcome for the majority of people involved;
 - ◆ certain actions are never justified because they are unnatural or wrong

- ◆ How are these activities similar to, and different from, what we teach now?

GCSE Science – for all students

- ◆ Developing the scientific literacy which everyone need to engage in an increasingly scientific world
- ◆ Much is familiar – whole class, group, and individual work
- ◆ Practical work is important

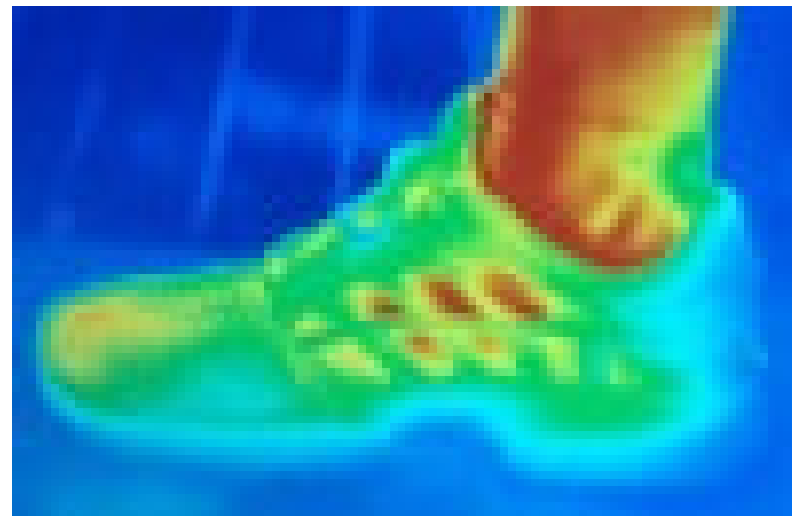


GCSE Science – for all students

- ◆ Developing the scientific literacy which everyone need to engage in an increasingly scientific world
- ◆ Much is familiar – whole class, group, and individual work
- ◆ Practical work is important ... as are a range of other different activities
- ◆ Internal assessment: case study 20% + data analysis 13.3%



GCSE Science



GCSE Science

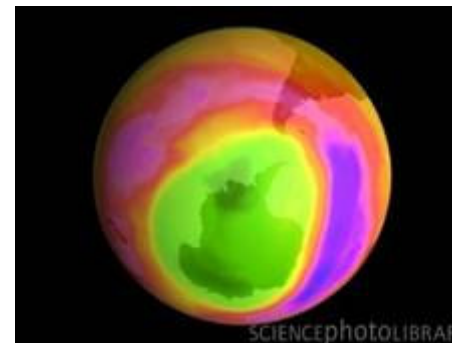
- ◆ What science does a citizen meet?



- ◆ What do they need to deal with this?
 - Some scientific knowledge
 - Something about scientific enquiry and the kinds of knowledge it produces

GCSE Science for citizens

- ◆ Science Explanations
 - e.g. chemical reaction: a rearrangement of atoms (no creation/ loss); gene theory of inheritance; radiation; interdependence of living things

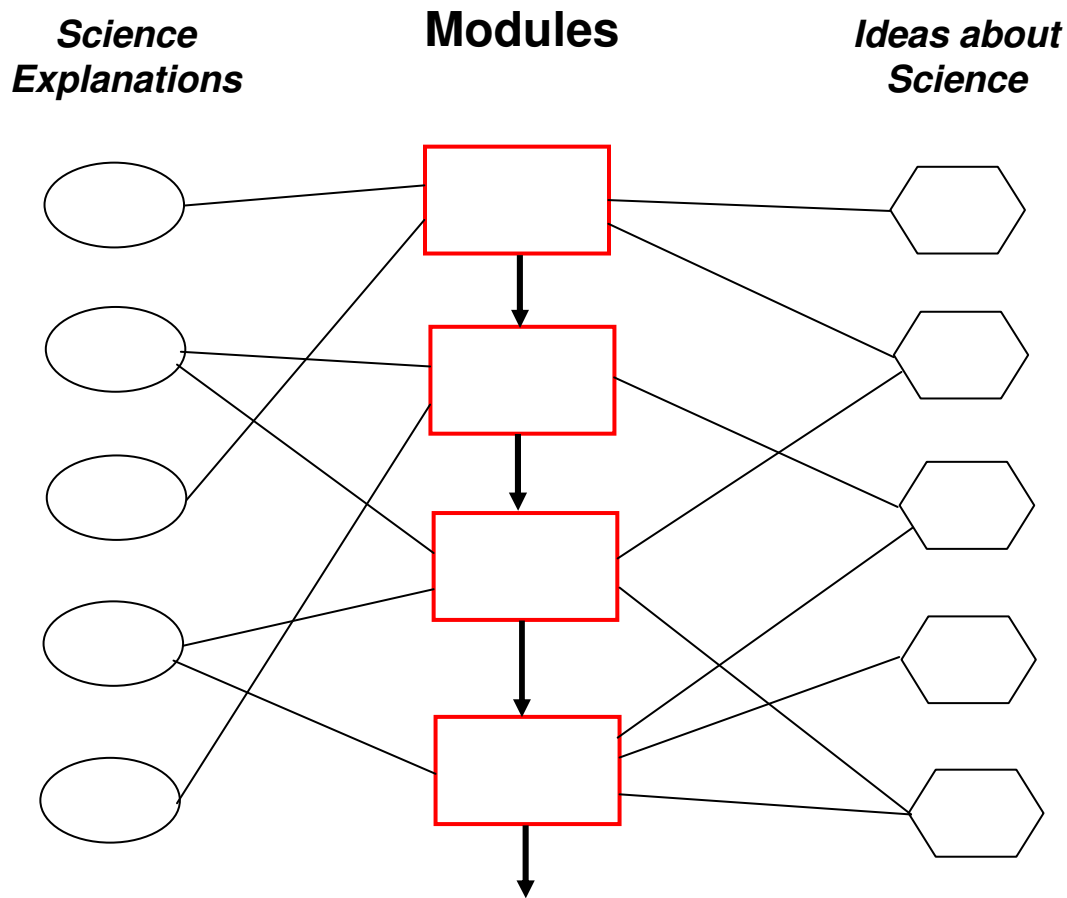


GCSE Science for citizens

- ◆ Science Explanations
 - e.g. chemical reaction: a rearrangement of atoms (no creation/ loss); gene theory of inheritance; radiation; interdependence of living things
- ◆ Ideas about Science
 - limitations of data; correlation and cause; developing explanations; scientific community; risk; making decisions about science and technology



Putting it all together



GCSE Science modules

- ◆ You and your genes **B**
- ◆ Air quality **C**
- ◆ Earth in the Universe **P**
- ◆ Keeping healthy **B**
- ◆ Materials **C**
- ◆ Radiation and life **P**
- ◆ Life on Earth **B**
- ◆ Food matters **C**
- ◆ Radioactive materials **P**
- ◆ Each module 12 hours teaching time
- ◆ Content has been reduced as necessary post-pilot to ensure this works
- ◆ Leaves time for internal assessment to be done where you feel appropriate
- ◆ Can use exemplar assessment, or your own activity

GCSE Additional Science

- ◆ Introduces scientific concepts needed for further study
- ◆ Considers applications of science where relevant
- ◆ Less emphasis on issues, more on further exploring science explanations
- ◆ Uses a range of teaching and learning activities
- ◆ Internal assessment: one investigation (not Sc1!) 33.3%



GCSE Additional Science

- ◆ Homeostasis **B**
- ◆ Chemical patterns **C**
- ◆ Explaining movement **P**
- ◆ Growth and development **B**
- ◆ Chemicals of the natural environment **C**
- ◆ Electric circuits **P**
- ◆ Brain and mind **B**
- ◆ Synthesis **C**
- ◆ The wave model of radiation **P**
- ◆ Nine modules; each 12 hours of teaching time
- ◆ Internal assessment to be done where appropriate; use exemplars or your own activity

GCSE Additional Science

B5 Growth and development

- ◆ Describe the main processes of the cell cycle:
 - ◆ Cell growth (numbers of organelles increase, chromosomes copied)
 - ◆ Mitosis (copies of chromosomes separate, cell divides)
- (NB Candidates are not expected to recall intermediate stages of mitosis)

C5 Chemicals of the natural environment

- ◆ Explain that ionic compounds conduct electricity when dissolved in water because the ions are charged and they are able to move around independently in the water
- ◆ Recall that, during electrolysis, metals form at the negative electrode and non-metals form at the positive electrode

P4 Explaining motion

- ◆ Draw and interpret the shape of a distance-time graph for an object that is stationary, moving at constant speed, moving at increasing or decreasing speed
- ◆ Relate these ideas about motion to applications such as lorry tachographs

Separate Sciences

- ◆ Fitness for purpose: exciting course for students who are exploring sciences at a deeper level
- ◆ Not simply a repeat of what they will study at AS level
- ◆ More detailed exploration of Science Explanations, contemporary research, applied science in relation to practising scientists
- ◆ Study Science + Additional Science + Further Science for each subject area
- ◆ Internal assessment: choose from GCSE Science or GCSE Additional Science in each subject area
- ◆ Receive three GCSE grades in Biology, Chemistry and Physics
- ◆ Can study one course individually after GCSE Science
- ◆ Can begin teaching as three separate sciences but revert to GCSE Science & GCSE Additional Science at a later date