



Science and Society

Science and Society

- **Scientists** are objective and look for explanations of the materials and phenomena which surround us



Activity-Look at the image of a scientist at work (Figure 1). Can you think of 5 words that describe the work of this scientist?

Figure 1: Scientist at Work



Words to describe this scientist at work:

- 1.
- 2.
- 3.
- 4.
- 5.

Activity-Examine the statements about science in your school. Do you agree or disagree with each statement?

At school my experience of science is that it:

- is boring,
- is an active and practical subject,
- always has a right answer to find,
- is about investigations,
- is fun,
- is very theoretical,
- contains a lot of mathematics,
- is about learning facts and figures,
- is something I am good at,
- is about testing to see if a theory is right or wrong,

Science and Society

- Society makes decisions on controversial questions / issues by listening to the opinions of experts



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Can you think of examples?

Science and Society

Can you think of examples?

- Human cloning
- Choosing the sex of your child
- Abortion and disability



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- Scientists contribute evidence to the debate of social issues
- Scientists are influenced by social and cultural issues and views

Science and Society

- How has Science influenced society ?

Early “Science ideas”

- Science ideas contributed to
 - The beginnings of agriculture
 - The domestication of animals
 - The wheel



- Can you give a date to each of the following science related events?
- Pasteurisation of milk
- Marie Curie discovering radiation
- Explanation of how the steam engine worked
- Discovery of penicillin (anti-biotic)
- Invention of the wheel
- Invention of steam engine
- Invention of the telescope
- Mathematical explanation of motion of planets around the earth
- Explanation of solar system with sun at the centre
- Idea that earth spins and moves around the sun
- Explanation of gravity based on mutual attraction between all objects
- Light split into its colours - spectrum
- Explanation of light as a stream of particles
- Explanation of light as waves
- Systematic study of eye diseases
- Invention of the lens
- Invention of spectacles to improve vision

Science and Social change

- Science influenced the move from hunter / forager / to settled communities linked by transport



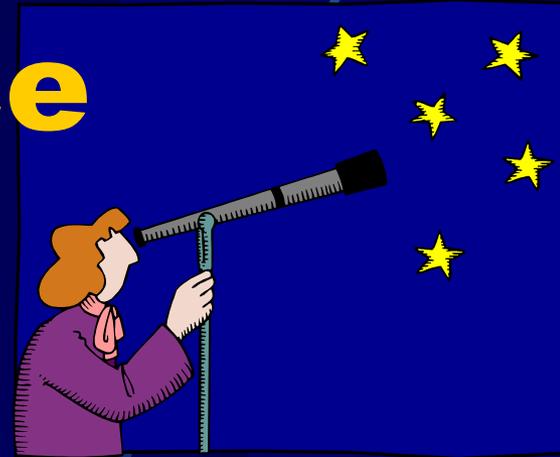
Early Science

● Astronomy

- Explain the seasons
- Explain the movement of planets

Challenged Astrology

- Cultural and religious



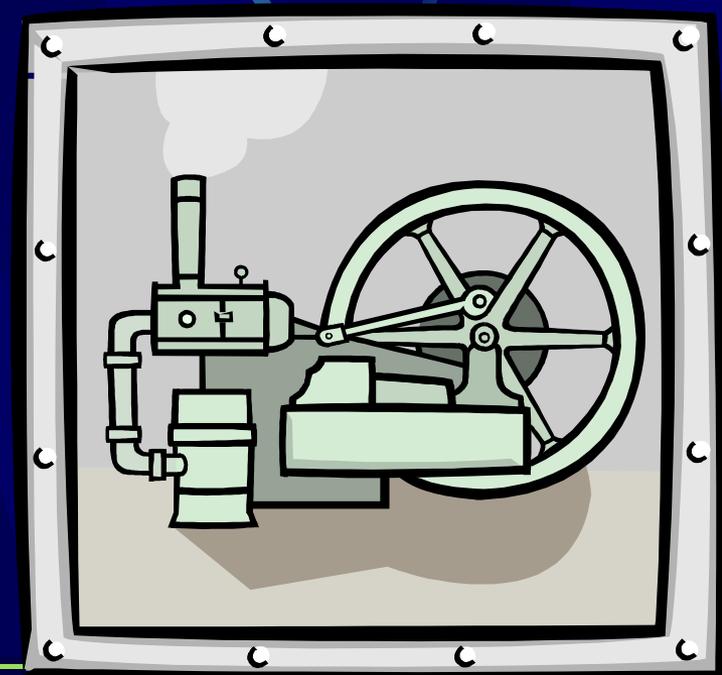
17th Century Science

- Patronage and funding needed
 - Science must be useful to the state
- Aristocrats with private means

18th Century Science

● Separation of Science and Technology

- making
- thinking



Separation of Science and Technology

● Making

- Industrial revolution

● Lack of thinking

- No basis for dealing with its problems
eg pollution and global climate change

18th Century Science

- Deforestation
- Fossil fuels
- Global climate change



18/19th Century Science

- Scientists did not comment on social issues
- Science was about measuring and recording



Rockit Activity

The nature of science

- Science is not just about measuring and recording

**It needs to
serve society!**

20th Century Science

- Name Bernal reconciles science, technology and society (1930s)
 - Who was he?
 - Why was he important?

Bernal

- Wrote "The Social Function of Science" in 1931 in which he introduces the ideas of 'contracts' between science and humanity.

20th Century Science

● Science offers the means to effect social change

- Immunisation ex: measles, mumps
- Women's issues ex: contraception, abortion, housework aids

Science and War

● First World War

- The Chemist's war

● Second World War

- The Physicists war



Dinosaur Activity

21st Century Science

- Philosophy of Science
 - Acceptance that Scientific knowledge is fallible (faillible)

Today



- Desire to use Science to solve global issues



Science is expected:

- To give definite answers
- To give ultimate truths
- Not to make mistakes

but.....

Conclusion

- Science is:
 - Subjective
 - Not always right
 - Can help us think and inform our decisions
- Society needs to:
 - Have realistic demands
 - Be literate in about science

Conclusion

- There may need to be a new contract between science and society.
 - What will this contract look like?