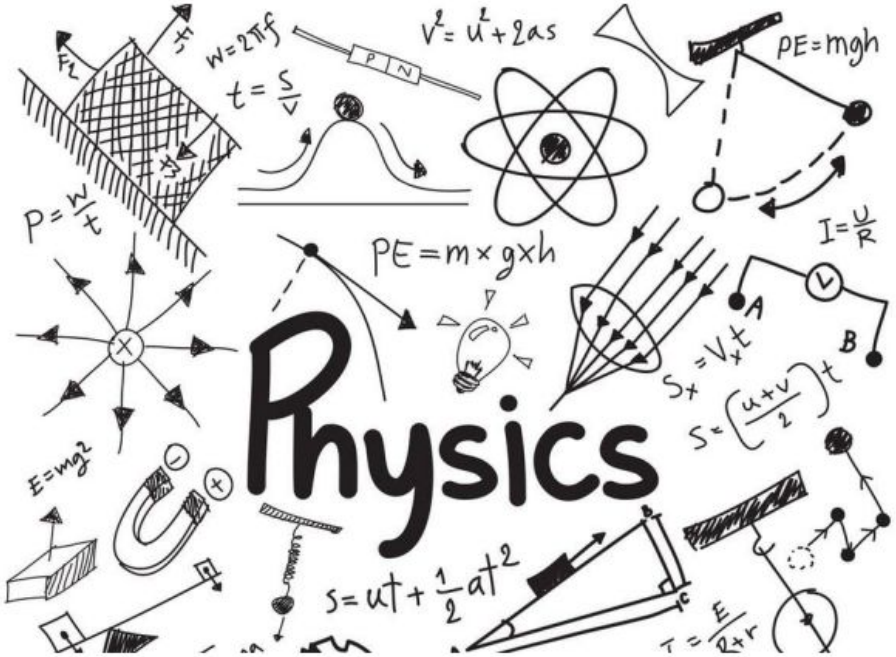
Welcome to Physics!



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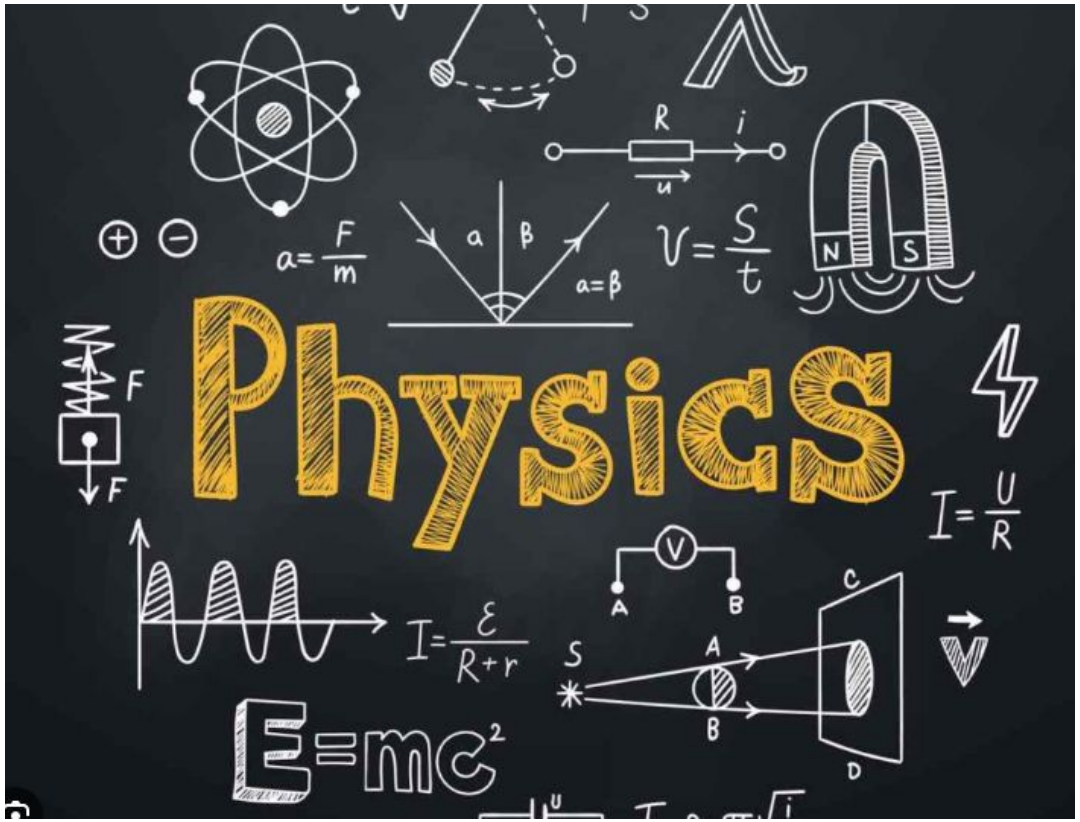
- Introductions to the team
- What is A level physics about?
- Why do physics?
- What will you study, how is it assessed?
- Why Beechen Cliff?

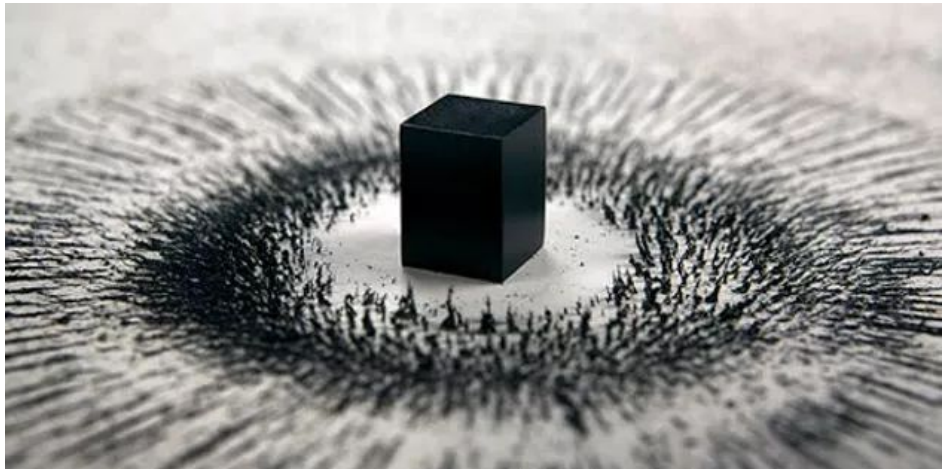
Beechen Cliff

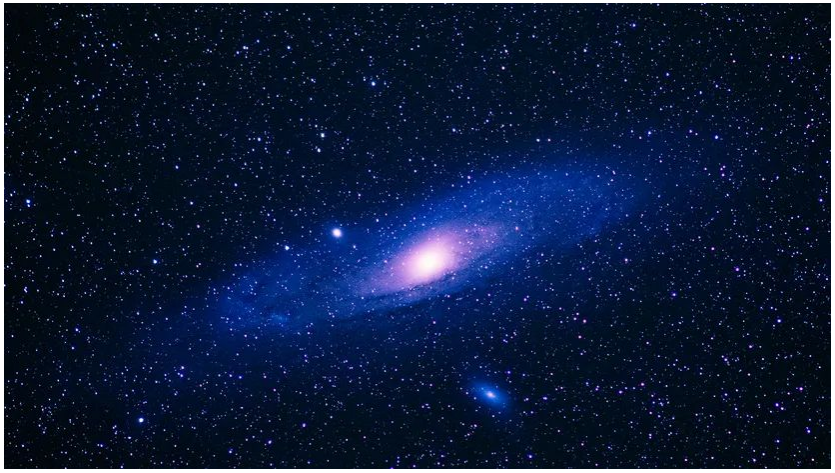
Physics is the natural science that studies *matter, energy,* and their fundamental interactions, including *motion, forces, space,* and *time*.



Beechen Cliff

It aims to describe how the universe works, from the smallest subatomic particles to the largest structures like galaxies, and is considered the most fundamental of the sciences.





WHY PHYSICS?

1. It will develop important skills

- Problem solving
- Analysis and explanation
- Communication of challenging concepts
- Teamwork
- Handling data
- Practical skills
- Attention to detail

2. Highly attractive to a wide range of employers

- Engineering
- Architecture
- Telecommunications
- Space/Satellite industry
- Law
- Finance
- Medical physics

3. For the love of learning about our universe!

Beechen Cliff

Why Physics?

Physics is useful in many different job families including:-

- Agriculture,
- Plans and Land,
- Environmental Sciences,
- Construction,
- Engineering and Manufacturing,
- Medicine and Nursing,
- Medical Technology,
- Science and Research.

Skills and qualities from studying physics

- Teamwork
- Technical ability
- **Problem solving**
- Time management
- Organisation
- **Numeracy and data handling**
- Communication
- **Attention to detail**
- Administration
- Analytics
- Discipline
- IT
- Ability to understand technical plans

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Are you…?

- Interested in getting a qualification that leads to lots of different options at university, from Theoretical Physics to Applied Physics, Engineering and Mathematics?
- Interested in STEM careers?
- Curious about how things work?
- Interested in problem solving?
- Interested in doing a wide variety of practical experiments to test hypotheses?
- Curious how the universe works?
- Interested in how new particles are discovered?

Year 12

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Module 1 – Development of practical skills in physics

1.1 Practical skills assessed in a written examination
1.2 Practical skills assessed in the practical endorsement

Module 2 – Foundations of physics

2.1 Physical quantities and units
2.2 Making measurements and analysing data
2.3 Nature of quantities

Module 3 – Forces and motion

3.1 Motion
3.2 Forces in action
3.3 Work, energy and power
3.4 Materials
3.5 Newton's laws of motion and momentum

Module 4 – Electrons, waves and photons

4.1 Charge and current
4.2 Energy, power and resistance
4.3 Electrical circuits
4.4 Waves
4.5 Quantum physics

Year 13

Module 5

– Newtonian world and astrophysics

5.1 Thermal physics

5.2 Circular motion

5.3 Oscillations

5.4 Gravitational fields

5.5 Astrophysics and cosmology

Module 6

– Particles and medical physics

6.1 Capacitors

6.2 Electric fields

6.3 Electromagnetism

6.4 Nuclear and particle physics

6.5 Medical imaging

Year 13

Assessment

A Level is covered by three examinations:

- Total of 6 hours of examinations (2 x 2 hours 15 minutes and 1 x 1 hour 30 minutes) taken at the end of the course.
- A wide range of questions types which include multiple choice, short answer and extended response questions.

Beechen Cliff

A-Level Physics

Exam board OCR-A

Content Overview	Assessment Overview	
Content is split into six teaching modules: • Module 1 – Development of practical skills in physics • Module 2 – Foundations of physics • Module 3 – Forces and motion • Module 4 – Electrons, waves and photons • Module 5 – Newtonian world and astrophysics • Module 6 – Particles and medical physics Component 01 assesses content from modules 1, 2, 3 and 5. Component 02 assesses content from modules 1, 2, 4 and 6. Component 03 assesses content from all modules (1 to 6).	Modelling physics (01) 100 marks 2 hours 15 minutes written paper	**37%** of total A level
	Exploring physics (02) 100 marks 2 hours 15 minutes written paper	**37%** of total A level
	Unified physics (03) 70 marks 1 hour 30 minutes written paper	**26%** of total A level
	Practical endorsement in physics (04)* (non exam assessment)	Reported separately (see Section 5h)

Year 13

Practical Endorsement

Suite of 12 Practical Activity Groups

Recorded lab books

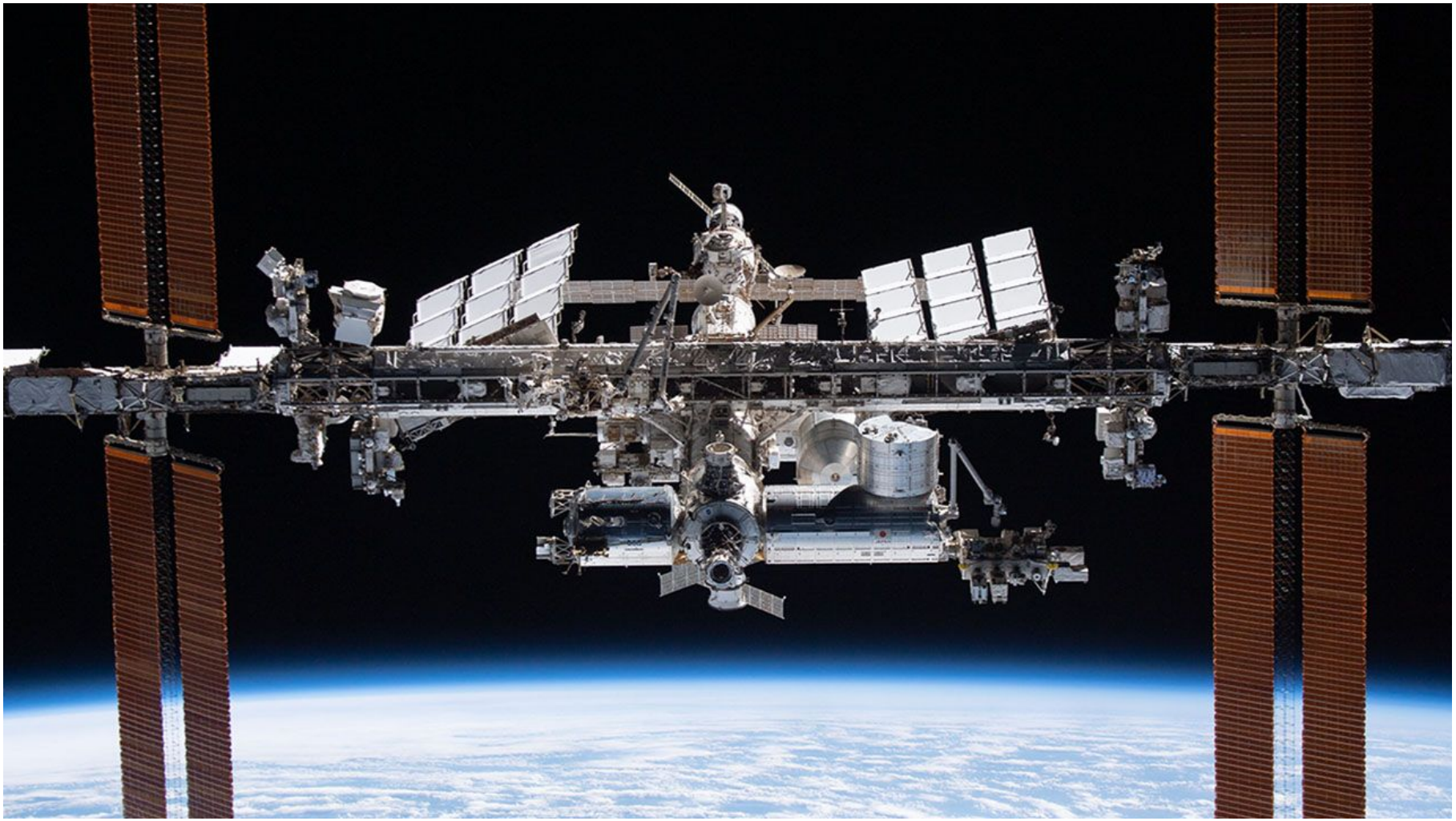
Skills assessed in written exams

Practical endorsement awarded alongside grade

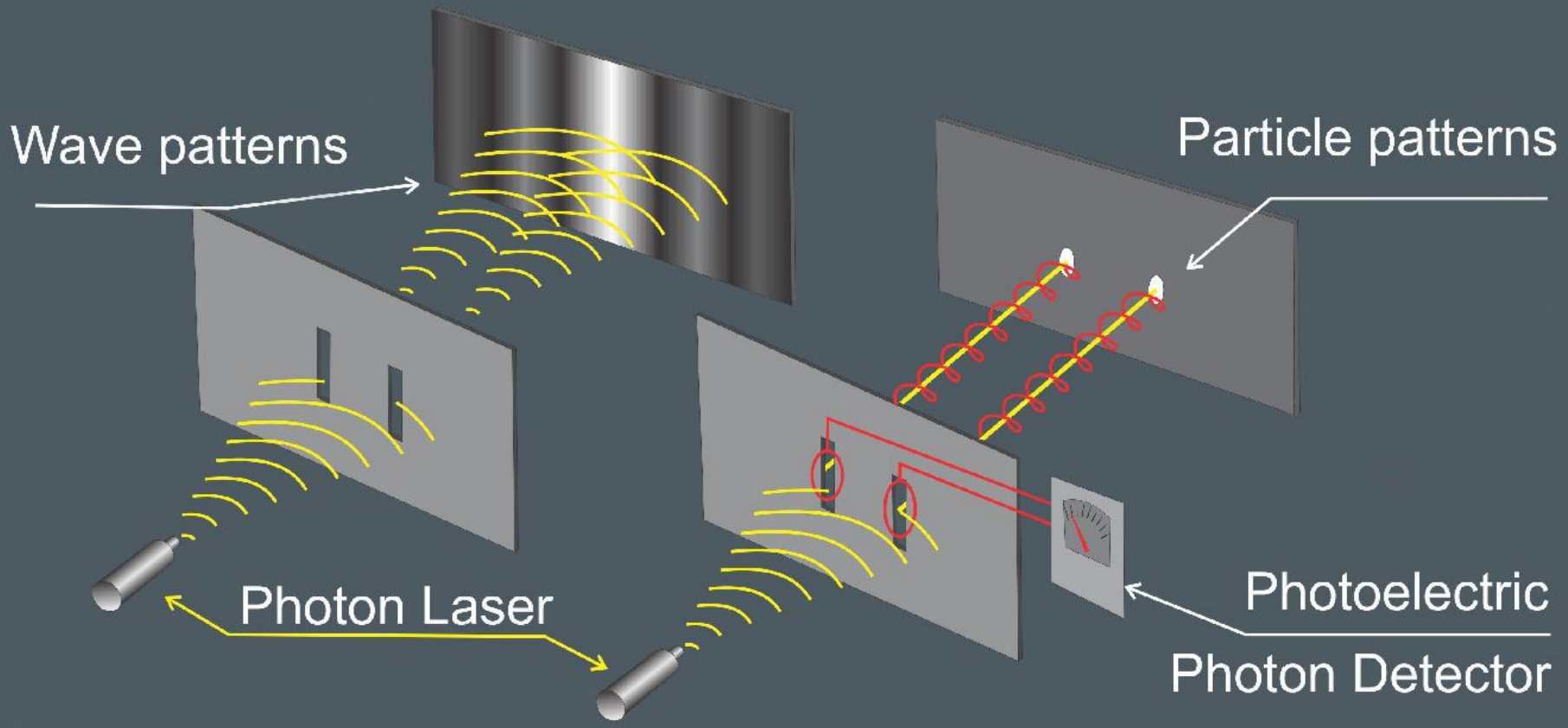
Beechen Cliff

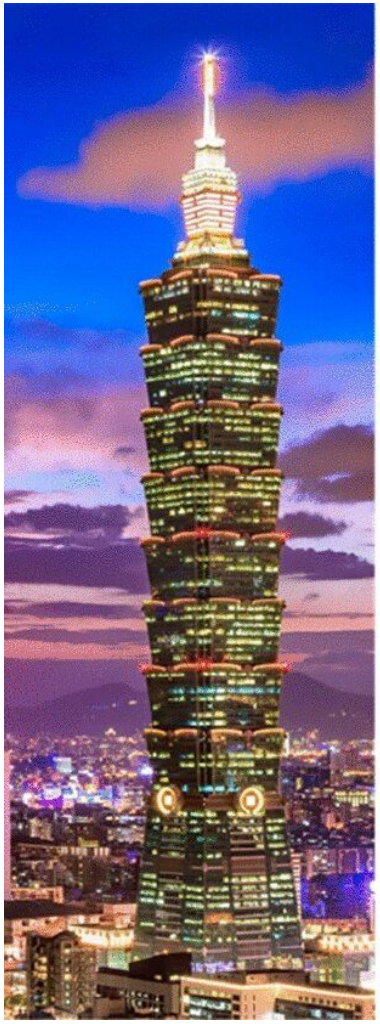
A-Level Physics

Exam board OCR-A



Double Slot Experiment





Why do physics at Beechen Cliff?

- All A-level teachers are Physics specialists
- Lots of students study the course
- Year 12: Approx. 40 students per year
- Above national average female physics students
- Broad curriculum – visitors, trips, clubs, competitions

Beechen Cliff

A-Level Physics

Exam board OCR-A

Headline	2023	2024	2025
Entries	42	41	37
%A*/A	26%	32%	35%
%A*-B	45%	56%	73%
%A*-C	71%	71%	95%

Institute of Physics recognition

IOP Institute of Physics

One of the top Physics Departments in the country in terms of progression and retention of students at A-level.

Trips & Events:

- **Trips**: Hinkley, A-Level Science Live.
- **Bristol and Bath Uni** – activities on campus or in school
- **Future Horizons**: Visiting Academics (talks on): Glaciers, Black Holes, Dyson, European Space Agency, Architecture & Future of the Combustion Engine, at Beechen.
- **CERN**

Other Extracurricular:

- Lower school science club
- Physics Olympiad
- Support science lessons

Any Questions?

Thought provoking questions for you:

- Thought provoking questions for you
- If you are, gravitationally speaking, attractive? Is it really true that what goes up must come down?
- What does uncertainty really mean when we talk about measurements?
- Why do gravitational forces decrease as we travel away from the earth?
- What forces do you experience on a rollercoaster?