

Planning for Mantle of the Expert

Stage 1 Foundations ↓	1. Choose a Theme	Science Properties of Materials- The Disappearing island		
	2. Create an Overview of the Students' Learning	3. Make a list of things that make the theme interesting	4. Generate questions for inquiry	
	<ul style="list-style-type: none"> - Magnetic materials - Separating materials - Reversible and Irreversible changes - Mixtures and solutions - Creating experiments and fair tests - Reading and using scientific data 	<ul style="list-style-type: none"> - The strange disappearance of an island in the middle of the Atlantic - Disaster happens on the island and the group of scientists need to use their knowledge and expertise to survive - The discovery of what has made it disappear - Working covertly for a top secret government organisation (Mi5) 	<ul style="list-style-type: none"> - What is magnetism? - Why are materials magnetic? - What do we need to survive? - How has the island disappeared? - What is causing the magnetic field? - What is making the magnetic field reduce? - How can water be purified? 	
Stage 2 Context ↓	5. Invent a narrative – include tension, location and time	6. Select an Expert Team – create a list of powers, responsibilities and values	7. The Client – their role, purpose and authority	
	<p>A geological team are working in the middle of the Atlantic when they discover a strange anomaly. An island in the Atlantic has suddenly disappeared from live satellite images beaming in from space. In place of the island is a strange blur that the cameras on the satellite cannot penetrate. Along with the blur the satellite's equipment is picking up a surge in the island's magnetic field. The team are contacted by the leader of a team of Mi5 and asked to visit the island to discover what is happening. They are asked to maintain the utmost secrecy until they have discovered what is causing the anomaly. The last thing the world needs right now is another (possibly unnecessary) crisis.</p>	<p>The team are a group of expert scientists who specialise in properties and the use of materials, especially magnetic materials and the affects of magnetism and the ways that it can be used. They are also attached to Mi5, however this is kept top secret</p> <ul style="list-style-type: none"> - Responsible to report the facts accurately - Responsible to pose sensible questions - Responsible to create experiments to test hypothesis - Responsible to research appropriate information - Responsible to listen to the ideas of other members in the team and take on board their ideas - The power to suggest ways forward for the island - Responsible for national security - Keeping findings secret and ensuring the safety of British citizens 	<p>Mi5- The leader of Mi5 contacts Magneto Enterprise when The HMS Discovery discovers the disappearance of an island in the Atlantic Ocean. It is imperative that this information does not get out to the public, especially in the current climate. Mi5 want to know why the island has disappeared. I enemies of the U.K. can make an island appear to disappear, who knows what else they can do. They will ensure that Magneto Enterprise act accordingly and with national interest.</p>	
	8. Device the Commission	9. Consider other points of view		
	<p>The team are a group of expert scientists 'Magneto Enterprise', who specialise in properties and the use of materials, especially magnetic materials and the effects of magnetism and the ways that it can be used, are hired to investigate the disappearance of an island and the strange magnetic signature which has been left in its wake. They need to uncover strange secrets as to why the island has disappeared from satellite images and the magnetic signature which is left. Before the team leave to investigate the island, they must compile facts regarding magnetism and magnetic materials. Magneto Enterprise work for Mi5, the disappearance of an island is of interest to national security. The team must keep their discoveries top secret and protect national interest.</p>	<ul style="list-style-type: none"> - Marine biologist - The inhabitants of the island - Other nations that have also seen the anomaly - Environmentalists - Journalists - The PM and leaders of national security 		

Stage 3 Activities & Curriculum Links ↓	10. A list of Team tasks and classroom activities	11. ACE Curriculum Links	12. Literacy Links & Ideas
	<ul style="list-style-type: none"> - Generate experiments to discover which materials are magnetic - The affect of magnetism (making a compass) - Separating mixtures - Understanding reversible and irreversible change - Writing a scientific report - Discussion on impacts of change - Discussion in who has rights to land 	<p>The team are a group of expert scientists who specialise in properties and the use of materials, especially magnetic materials and the affects of magnetism and the ways that it can be used.</p> <p>With support produce a plan that includes question prediction variables (things to keep the same things to change) method results analysis evaluation</p> <ul style="list-style-type: none"> • compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • demonstrate that dissolving, mixing and changes of state are reversible changes • explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda <p>Vocabulary: Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing</p>	<ul style="list-style-type: none"> - writing a scientific report - writing a newspaper article - writing an information text using scientific discovery. - Adventure story - Blogs - Diary entry. - Letter to the UN regarding the scientific importance of the island
Stage 4 Start	13. Plan a sequence of steps into the fiction		
<p>Step 1- Framing the drama</p> <p>Show the class an image of a Scientific explorer (HMS Discovery) in the middle of the Atlantic Ocean. What do you notice? Look to build on descriptive skills and model descriptive language making links with talking for writing.</p> <p>Explain to the class that this vessel was conducting a scientific enquiry into temperature variants within the Atlantic Ocean and the impact on marine life and making links with global warming. While working, something happens.</p> <p>Show an image of the lead scientist on the HMS Discovery.</p> <p>TIR- as the lead scientist. They are pacing in their quarters, showing that they are confused. What do the children notice? Remember that this is building on the skill of ‘show and not tell’</p> <p>Children then listen in to the scene. TIR says a line and then the children infer what is happening.</p> <p>1/ I am totally confused. 2/ Where has it gone? There must be a fault with the equipment 3/ Why have we not been able to register this magnetic pulse/field before?</p>			

4/ How can something that vast have disappeared?

5/ What shall we do with this discovery?

6/ I am sure that the island is still there, even though satellite images can't see it, and there is this strange magnetic field. I must enlist some experts to help.

Step 2: Introducing the commission.

Show the class an image of Mi5 on the River Thames. What do you see?

Explain to the class that this is the headquarters of Mi5. You may need to make explicit what Mi5 is.

On the evening of the day that HMS Discovery made their discover, the head of Mi5 was working late. Something had happened which could have an impact on national security. He made a phone call, which may have gone something like this;

'Good Evening Magneto Enterprises, the is the head of Mi5. We have an urgent matter which requires your attention. Earlier today a science vessel, HMS Discovery, was working in the Atlantic Ocean when they discovered that an island has disappeared, it is no longer visible to our satellites and where the island once was there is a strange magnetic field. We need you and your team to investigate exactly what is happening on the island. I can't explain to you the importance of secrecy- nothing can be leaked to the media. We last thing we need it to create unnecessary national panic on top of everything else that is happening. You need to assemble your team, we have a meeting with you tomorrow. See you then. Oh, one other thing. You will need to contact the captain of the HMS Discovery and ensure that they talk to no one.'

Step 3: the meeting at GCHQ

Show the class an image of the meeting room. What do you notice? Use comments to model writing setting description (Expanded nouns)-(Side step)

Provide each member of the class a small piece of paper. Explain that this is for taking notes.

Frame the scene: Assemble the team in the meeting room. Explain that they are here as members of Magneto Enterprise and they are to have an important meeting before they embark on their mission. They need to listen to the chief and take notes. Before that, explain that the chief will be sitting at a table. What is the table like? What is on the table? Etc

Narrator: It is early in the morning, the team of Magneto Enterprise have all assembled in the meeting room at GCHQ. Infront of them is a table (Use ideas to describe the table- ensure that you are making explicit to the children the use of the narrative voice). To the right of the table is a large wooden door. When it opens the Chief of National Security enters. Teacher voice: What do you expect him to be wearing? Develop ideas with the class.

Narrator: describing the character and his movements to position him/her at the desk.

Teacher: The chief of security is going to address Magneto enterprise, when they do you need to make notes to ensure you understand what your mission is.

TIR: Good morning. Thank you all for coming at such short notice. This mission is of high priority. Yesterday the HMS Discovery stumbled on a situation which we have been monitoring for a while, the disappearance of an island in the middle of the Atlantic Ocean. This island can no longer be seen using Satellite imagining, which means that we have no idea what is happening on the island. The only trace that the island still exists is the strange magnetic field which has been left in its place. The fact that HMS Discovery has discovered this anomaly is a concern, as it means that this situation could get out and with the global situation as it is we do not want people to panic. Until we know more it must be kept a secret. We want you to go to the island and use your knowledge of magnets and magnetism to find out what is causing this field and way the island has become invisible. Your secrecy is of utmost importance, and we must find out quickly. Before you leave, we need you to compile a paper on magnets and magnetism and how the behave under normal circumstances. Our science lab is at your disposal. Good luck all of you and god speed. Thank you for your support in this urgent matter.'

Step 4: Baseline

Before the team leaves it is imperative that they record the importance of magnetism, its uses and how it behaves under normal situations.

- Show an image of a magnetic field (neutrons scan). What do you notice? Teach that this leads on to our inference question. What do you think this is? Allow the children to explore, nothing is incorrect? What do you think the colours are? What do they represent? Allow time to develop and explore ideas and children's thinking. After discussion you could create some art.

- Show the class the next image of the Earth's magnetic field. What do you notice? Rpt from above developing the skill of developing understanding from what we see and our prior knowledge.