

Expedition Overview

Expedition Title: We the Explore	Timeframe: 60 days
Grade level: 6	Authors: Narayana and Kamakshi (Lead designers) and all teachers of Grade 6 team, Parminder Singh
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Expedition Summary

This expedition will invite the learner to explore the science and art of Navigation. They will experience the challenges and joy of navigating the unknown through different case studies and projects that will run through the expedition. These case studies and projects will help build a story for the students revealing the major breakthroughs in the history of navigation. The three projects within the expedition will provide the students an opportunity to learn how to use the tools of navigation. They will learn the skill of reading maps, using a compass to find directions and locate their global address using latitudes and longitudes. The learning will be anchored in their discovery of ‘what it takes to explore the unknown.’

Big Ideas

The innate urge to explore led to the evolution of the science of navigation.

Guiding Questions

1. What does it take to be an explorer?
2. What were some of the major breakthroughs in the science of navigation? and what led to them? How they impacted the evolution of navigation science?

Focus of the Expedition			
Subjects	Concepts/Understanding	Process skills	Craftsmanship and Character
Math	Use and conversion of scale, Measurement and Estimation, 3D to 2D drawings	Defining and Solving problems	Working through Drafts and the skill of Critiquing
English	Reading, Comprehension, Writing		
Science	Magnets and their properties, Magnetic Compass and its working, Science of navigation		
Social Science	Maps, Components of Maps, Relief features of the earth, History of navigation, case studies of Explorers, India physical map, globe(latitude and longitude)		

Learning Targets to be addressed in the Expedition	
Science and Technology	<p>1.I can apply my knowledge of how a magnetic compass works to use it effectively.</p> <ul style="list-style-type: none"> • I can demonstrate the properties of a bar magnet (Attractive and Directive). • I can experimentally identify magnetic and non-magnetic substances. • I can explain how the magnet of a magnetic compass makes it work.
Social Sciences	<p>1.I can read a map and elicit the information that I require from it.</p> <ul style="list-style-type: none"> • I can differentiate between a map, plan and sketch. • I can identify the key elements of a map. (Title; Symbols and legends; Distance and scale; Direction) • I can make a plan of a given area using an appropriate scale. <p>2.I can use latitudes and longitudes to specify the exact location of an object on Earth.</p> <ul style="list-style-type: none"> • I can explain with the help of a diagram how latitudes divide the earth into various heat zones. • I can calculate the time of a given place by using the longitude of that place. • I can differentiate between local and standard time. <p>3.I can comprehend the broad physiographic divisions of India</p> <ul style="list-style-type: none"> • I can define the major physical divisions of India. • I can explain the formation of mountains and differentiate between block and fold mountains. • I can describe how physical divisions-plains, plateau, mountains, rivers influence the life of people. • I can use conventional symbols to represent the major relief features on an outline map of India.
Reading	<ul style="list-style-type: none"> • I can read, comprehend and synthesize information from case studies given to me.
Writing	<ul style="list-style-type: none"> • I can describe my position with respect to my surroundings using appropriate prepositions. • I can use a variety of words to communicate my feelings and thoughts effectively.
Math	<ul style="list-style-type: none"> • I can calculate the real distance between 2 points on a map using the scale on the map. • I can choose an appropriate scale for designing a map. • I can convert the real distance between two points using the chosen scale to depict it on a map.
Visual and Performing Arts	<ul style="list-style-type: none"> • I can observe and draw a 3 dimensional picture of an Orienteering Compass.
Process Skills	<ul style="list-style-type: none"> • I can narrate /explain the problem accurately. • I can review the chosen solution to check the extent to which the solution is effective. • I can plan in detail before starting the process of looking for a solution.
Craftsmanship and Character	<ul style="list-style-type: none"> • I can be open to feedback and I can seek feedback to bring improvement in my work. • I can make several drafts of the same piece of work, incorporating feedback given on my previous draft. • I can document all drafts of my work systematically.

Specific Skills	<ul style="list-style-type: none">• I can estimate the distance between two given points with a fair degree of accuracy.• I can use a magnetic compass to locate a place using the given angle and approximate distance.• I can do experiments independently and record my observation minutely.
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Expedition Design Framework

1. Hook for the Expedition

As the name itself suggests, the ‘hook’ should be able to create the curiosity and excitement in children for the expedition. The idea is to prepare children for the expedition.

During the hook, grade 6 students did a ‘Treasure Hunt’ activity within the school. They created their own treasure hunt maps with the help of the instruction card and they exchange their maps with each other. The task was to find treasures using the maps made by children. This gave them an experience of what it takes to navigate the unknown.

2. Building Background Knowledge (BBK) for the expedition

Building Background Knowledge is a protocol through which we build required background knowledge among children for the expedition –this knowledge will help children to ask and engage with the right questions during the expedition. The design of the BBK enables students to quickly engage with the topic and raise questions to further deepen their understanding.

- a) We started off with a mystery piece- a picture of the lodestone and a poem on navigation. It was interesting to hear varied responses regarding the picture ranging from being a soup spoon to a musical instrument.
- b) This was followed by a gallery walk on navigation. The students recorded specific observations in the note catcher.
- c) The mystery was slowly getting unfolded with the help of common and expert texts. The students continued to record ‘what I now know about navigation’ and ‘what more do I want to know’. The enquiry questions were recorded in their crews and shared with the larger group.

Expedition Launch

This involves sharing of the expedition design i.e. big idea, guiding questions, learning targets, projects, products, etc with the students and the parents through an expedition overview document.

3. Projects

Project 1	
<p>Project Title: Sketch, Plan and Map</p> <p>Key Steps</p> <ol style="list-style-type: none"> a. Case Study of an explorer –how maps were important tool for navigation. b. Difference between Sketch, Plan and Map c. Making a plan (to scale) of a classroom d. Reading the Gurgaon Map e. Studying the relief features of India and marking them on a physical map using conventional symbols. 	<p>Big Idea: To navigate we need to know where we are and where we want to go and how we can reach there.</p> <p>Guiding Questions:</p> <ol style="list-style-type: none"> a. What makes map a map? b. How to read map? c. What are the major relief features of India? How can I depict them on a map? <p>Concepts</p> <ul style="list-style-type: none"> ○ Types of maps ○ Components of maps- ○ Direction ○ Symbol and legends ○ Scale ○ Distance ○ Relief features of India
<p>Case study</p> <p>How maps played a crucial role in the evolution of Navigational science?</p>	<p>Final product/ performance and the audience</p> <p>Demonstrating the ability to read and understand how to use Gurgaon map for navigating through the city</p>

Project 2	
<p>Project Title: Magnet and Compass</p> <p>Key Steps</p> <ol style="list-style-type: none"> a. Case study on compass and navigation –how compass helped explores in navigation. b. Module on magnets c. Using compass to find direction d. Making an orienteering trail map 	<p>Big Idea: Knowing direction is important in navigation</p> <p>Guiding question: How to use compass to find direction?</p> <p>Concepts</p> <ul style="list-style-type: none"> • Properties of magnet- Attractive and Directive • Four directions • Estimation and measurement
<p>Case study</p> <p>Discovery and use of the magnetic compass in the history of navigation.</p>	<p>Final product/ performance and the audience</p> <ul style="list-style-type: none"> • Designing an Orienteering trail Map

Project 3	
<p>Project Title :Globe</p> <p>Key steps</p> <ol style="list-style-type: none"> a. Case study on how the invention of globe, latitude and longitude impacted the science of navigation b. Module on Globe –learning how to read Latitude and Longitude 	<p>Big Idea: Finding my Global address.</p> <p>Guiding Questions: How do I find the exact location of an object or person on the surface of the earth?</p> <p>Concepts</p> <ul style="list-style-type: none"> • Globe • Latitude- Angular distance N and S of the equator , Heat zones • Longitude- Angular distance E and W from the prime meridian, Time zone
<p>Case study</p> <p>Use of longitude as a navigation tool in the history of Navigation</p>	<p>Final product/ performance</p> <ul style="list-style-type: none"> • What is the global address of Gurgaon?

Final product of the Expedition -Writing an descriptive writing on “what I would like to explore in my life?”

How will we prepare children for this:

- 1) After each case study, children will reflect on
 - a. What were the challenges faced by the explorer?

- b. What helped in overcoming the challenges?
- c. Had you been part of the exploration team, what role you would have played? How it would have impacted the outcome of navigation?
- d. What knowledge, skills and character traits did you find in the explorer?

2) We will do writing workshops after each case study to develop specific skills and traits of writing.

Audience for the product: Children will share their imaginative story with their parents during the expedition culmination.

Connecting with the Community

Fieldwork	Treasure hunt in the school premises. Navigating through an orienteering trail near the school premises.
Experts	Aurorashmi Mohanty, a resource teacher who has prepared a variety of orienteering trail maps for students.
Service learning	Popularizing Orienteering as a sport among the school and parent community and taking them through the joy of navigation during Heritage evening- organizing an Orienteering Olympics.
Expedition culmination	The Heritage evening –where children will share their learnings, experience and stories with their parents