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Title of the STEPAM Unit: Mapping, Magnets, and Movement

AUTHORS (NAMES /SCHOOL / COUNTRY): EXPERIENCE WORKSHOP, JAGODINA

RELATED SUBJECTS	AGE GROUP OF THE STUDENTS	TOTAL ACTIVITY TIME	LEARNING OBJECTIVES DURING THE LESSON SUBJECT-SPECIFIC COMPETENCIES	LEARNING OBJECTIVES AFTER THE LESSON
Science, Mathematics, Engineering, Physical Education, Arts	Grades 3–4 (approx. 8–11 years old)	100–150 minutes	Students learn about the discovery of natural ore Students learn about the concept of magnetism and the characteristics of magnetic force Learning to use mobile app for measurement of magnet force. Paint & sculpturing using magnetic force in order to develop their creativity. Creating a sculpture from iron and magnets. Creating a fishing rod from the given material. Development of agility and coordination.	Students can apply magnet force for practical use and applicability. Students use their knowledge of data representation for practical application. Students distinguish different view perspectives. The students improved their coordination and concentration

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			Collecting and presenting data in the form of tables. Using appropriate measurement units.	

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Overview: Topic & purpose

At the beginning of the activity, students are introduced to the discovery of magnets through the legend of the shepherd Magnes through a dramatization. After that, they become familiar with the basic properties and characteristics of natural and artificial magnets. Students learn about the way the magnetic force acts on iron objects and other materials. They learn about the interaction between the poles of a magnet.

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ACTIVITY PREREQUISITES -

STEAM ELEMENTS

ELEMENT 1: context presentation	• Dramatization: The story of Magnes discovering magnetite. • Introduction to types of settlements and map reading.
ELEMENT 2: creative design	• Drawing with magnetic force. • Building simple magnetic sculptures. • Constructing a fishing rod for the challenge.
ELEMENT 3: emotional and social learning	• Movement games to develop speed, agility, and teamwork. • Reflection on collaboration and creative problem solving.

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STEAM SUBJECT ELEMENTS

STEAM SUBJECTS	SCIENCE	TECHNOLOGY	ENGINEERING	Physical Education	ARTS	MATHEMATICS
SHORT INTRODUCTION TO RELATED SUBJECT ELEMENTS	Magnetic force properties; settlements and mapping.	Magnetometer apps; Google Maps for navigation.	Building magnetic sculptures and fishing rods.	Movement games for coordination and agility.	Creative drawing using magnetic force.	Data collection, table creation, equation solving.

SYLLABUS

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LESSONS	SUBJECTS	TOPIC OF THE UNIT	LEARNING OBJECTIVES DURING THE LESSON: SUBJECT SPECIFIC COMPETENCIES	LEARNING OBJECTIVES AFTER THE LESSON: STEAM COMPETENCIES
0 (Introduction)	Science, Social Sciences	The story of Magnes & settlements	Understand magnetism origins & mapping context	Connect storytelling with scientific observation
Activity 1	Science	Exploring Magnetism	Recognise magnet properties and forces	Describe attraction/repulsion using examples
Activity 2	Science, Arts, Engineering	Magnetic Drawing & Sculpture	Apply magnetic force in art & design	Build sculptures using everyday materials
Activity 3	Physical Education	Tagging Game & Teamwork	Develop speed, agility, balance	Improve coordination & spatial awareness

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Activity 4	Technology, **Mathematics**	Measuring Magnetic Force	Use apps for measurement & data	Present data in tables; compare results
Wrap-Up	**Engineering, Math**	Magnetic Fishing Challenge	Build fishing rods, measure force	Solve problems using maths and present data

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INSTRUCTIONAL PLAN BY LESSON (COPY AS MANY TIMES AS NEEDED)

LESSON Grade 3-4 Science, Engineering, Physical Education, Art (Language) and Mathematics

TIME PLAN	TEACHING & LEARNING ACTIVITIES	MATERIALS	LEARNING OBJECTIVES
INTRODUCTION (5 minutes)	Dramatization of the play with actors who present the shepherd Magnes who found magnetite ore by having the iron part of his sandal stick to the rock.	Costumes and props for actors (Students). Attached PDF slides: Slide nr. 1-3. Video	Spark curiosity; connect culture & science.
ACTIVITY 1: Exploring Magnetism (10–15 min)	Discussion about the characteristics of the magnets. natural and artificial magnets, action of magnetic force, interaction between the poles of magnets, repulsion and attraction. Transmission of magnetic force. Teacher's frontal work and discussion about the basic properties and	• Magnetic boards with letters and numbers. • Fridge magnets. • Magnetic bars and magnetic horseshoes • Optional: Magnetite Ore.	Recognise basic properties & interactions.

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	characteristics of magnets and magnetism.		
ACTIVITY 2: Magnetic Drawing & Sculpture (20 min)	• Students, by using a magnet and iron objects, they draw shapes by moving them. • Build magnetic sculptures in groups.	• Magnets, • smooth surfaces, • iron pieces	Apply concepts creatively; explore construction.
ACTIVITY 3: Tagging Games & Teamwork (45–60 min)	Games: • Two Is Company, Three Is a Crowd • Find a Pair • Double Leg Stick Relay • Musketeers	• Cones, • sticks.	Develop movement skills; foster teamwork.

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ACTIVITY 4: Measuring Magnetic Force **(10–15 min)**	• Use magnetometer apps to measure force. • Record & compare data.	• Mobile phones, • tables/charts.	Link tech & data collection.
WRAP-UP & EVALUATION (15-20 minutes)	**Fishing tasks:** **Sticks with a magnetic tip. Students should construct a fishing rod from a stick and a magnet using auxiliary means, such as ropes and duct tape.** **The students are fishing a kinder egg with an iron piece and task inside.**	• **Stick and a magnet using auxiliary means, such as ropes and duct tape.** • Kinder surprise eggs and small iron pieces. • Bowls for kinder eggs and for math magnets.	Practice engineering, apply maths, reflect on the process.

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EVALUATION PLAN BY LESSON

LESSON	EVALUATION CRITERIA	EVALUATION METHOD
All	Did students demonstrate understanding of magnets & forces?	Observation, group work
	Did students collect & present data clearly?	Review tables and discussion.
	Did students work as a team and complete constructions?	Peer feedback, teacher review
	Did students apply physical skills in games?	Observation & peer reflection

HOMEWORK

- Find and sketch a map of your neighborhood. Label streets and landmarks.
- Observe where magnets are used in daily life and note them down.

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