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Title of the STEPAM Unit: Hop to grid

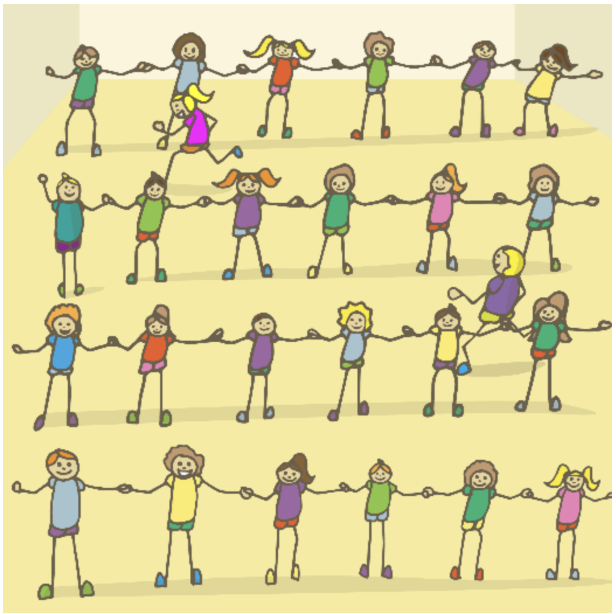
AUTHORS (NAMES /SCHOOL / COUNTRY): EXPERIENCE WORKSHOP, JAGODINA

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, Social Science, Technology, Engineering, Art, Physical Education	Grades 3–4 (approx. 8–10 years old)	90 minutes	Understand differences between rural and urban settlements Recognise how people, buildings, and infrastructure are arranged Apply spatial relations on a coordinate grid Develop navigation and map skills using digital tools Enhance motor skills and spatial awareness through movement Collaborate to design and build creative settlement models	Students can compare rural and urban settlements Students can apply grid navigation in real-life scenarios Students can plan and design settlements creatively Students can use maps and directions to find locations Students can demonstrate teamwork and coordination skills

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OVERVIEW: TOPIC & PURPOSE

Students learn how people and buildings are organised in settlements, practice spatial reasoning with grids, develop map navigation skills, and connect these concepts to real-world applications through games, technology, and model building.

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ACTIVITY PREREQUISITES -

STEAM ELEMENTS

ELEMENT 1: context presentation	• Dramatized skit to explore rural vs. urban life differences • Discussion about infrastructure, transportation, and daily life
ELEMENT 2: creative design	• Plan and build settlements on grid paper • Design 3D models or bird's-eye maps using recyclable materials
ELEMENT 3: emotional and social learning	• Movement-based games: Human Grid Game, Streets and Alleys • Collaboration in small groups for design and presentation

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STEAM SUBJECT ELEMENTS

STEAM SUBJECTS	SCIENCE	TECHNOLOGY	ENGINEERING	Physical Education	ARTS	MATHEMATICS
SHORT INTRODUCTION TO RELATED SUBJECT ELEMENTS	Types of settlements, rural and urban, settlement plan, reduced representation of buildings from a bird's eye view, navigation in the settlement (street, even and odd numbers, square)	Using electronical devices (Mobile phones or computers) with google maps.	Creation of a map with the distribution of objects	Human Grid Game, Streets & Alleys for orientation & agility	Presentation of objects from a bird's eye view (Drawing maps & 3D models)	Square grid, preparation for coordinate system and vectors

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SYLLABUS

LESSONS	SUBJECTS	TOPIC OF THE UNIT	LEARNING OBJECTIVES DURING THE LESSON: SUBJECT SPECIFIC COMPETENCIES	LEARNING OBJECTIVES AFTER THE LESSON: STEAM COMPETENCIES
1	Science, Mathematics, Engineering, & Arts.	**Types of settlements, location, (addresses, street and number)** Using a square grid for moving and translating object Drawing and presenting objects from a story perspective.	Students learn content about settlements. learn about the basic elements of the settlement plan Students develop spatial relations and orientation. Students use how to present different view perspecive. Students construct objects for the map.	Students know how to use a map to navigate in space. Students use their knowledge of the square grid for practical application. Students use how to present different perspectives Students learn how to design and read map.

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2	**Physical education,** Technology **Mathematics,**	Development of motor skill (speed, agility and coordination). Running exercise. Using a google map	The students are physicaly active and they develop their physical skills. Students determine knowledge about even and odd numbers, logical sequence, knowledge of geometry (basic knowledge about lines)	Students are more active and healthy. Improving their motor skills – speed and agility. Students learn to organise relevant information on the math grid Student learn how to use google map features in application.

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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 – 10 minutes)**	Dramatization of the play with actors who present the inhabitants of the village and the city and their meeting and dialogue.	Costumes and props for actors (Students). Attached PDF slides: Slide nr. 1-3.	**Students expand knowledge about the characteristics of the rural and urban population. Alternatively, the customs of different nations and nationalities.**
LEARNING ACTIVITIES **(60-70 minutes)**	**Discussion about the characteristics of the rural and urban population. Alternatively, about the different nations and nationalities.** **In pairs, students arrange predetermined objects in**	**Square grid 10x10 on paper in A3 format. Cardboard and paper material made objects for the placement on the grid. Pens.** Attached PDF slides: Slide nr.4 -6.	**Students learn how a shadow is created in nature and under what conditions its shape and size change.** They use units of measurement for length. They determine body shapes from geometry.

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	an already prepared square grid. The students have the task of placing a school, a house, a bakery, and similar predetermined objects, such as a museum. E.g. house is placed in B4, and school is placed through squares A1, A2, B1, & B2 **Students have the task of describing the movement on a square grid using three predetermined examples (E.g. House – School, School – Museum, House- Bakery, etc).** **Movement and displacement of the figure on a square grid (tasks number of squares, direction of movement).** Students draw a map of the settlement using reduced objects from a bird's eye view.		**The student use to creatively combine different material and design (<>>>>)** Students learn, repeat and perfect different movements that develop coordination of movements.

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	Streets and Alleys. Line Tag.		
WRAP-UP & EVALUATION (15-20 minutes)	**Students use computers and mobile phones with the help of the google map application to find a given route between predetermined destinations (eg home to school). students have the task of comparing different types of transport (on foot, bicycle, car, public transport). Also, they compare lines, straight lines, broken curves.**	A larger box representing a theater scene. Mobile phones to create a light for shadow theater	Learning about how to create shadow and penumbra using light and different materials. They learn to work and cooperate in a group. They learn educational things depending on the specific play.

EVALUATION PLAN BY LESSON

LESSON	EVALUATION CRITERIA	EVALUATION METHOD
	Can students use grids and directions correctly?	**Observation during activities**

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All	Did students collaborate effectively?	Peer review, group reflection
	Did students demonstrate creativity in design tasks?	Presentation of settlements
	Did students apply spatial language and navigation?	Sketch review, teacher questioning

HOMEWORK

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NOTES –

Picture 1

Picture 2

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ACTIVITY SHEETS TO BE LINKED -

EVALUATION MATERIALS TO BE LINKED -

REFERENCES / SUPPORTING MATERIALS TO BE LINKED

PDF / PPT slides:

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