Learning Unit for 3rd and 4th Grade

on

Children's Inventions

Unit Developer

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General information

Unit Developer: Mazi Journo

Field of knowledge: Language

Age group: Grades 3 – 4

Estimated time for learning: 22 hours of study

Subject studied: Children's inventions

Sub-theme: To give children an opportunity to identify problems in their environment and community and think creatively about solutions; to prove to children that, despite their young age, they have the power to change and influence the environment, the community and the world.

Key concepts: inventions, patent

Learning environment: The classroom, learning spaces, meeting people from the community, their living environment, as well as the electronic environment.

Reasons for choice of subject

Rationale for the teacher and the learning sequence

The purpose of the unit is to expose the students to things that children have invented over the years. We will ask in class and investigate what helped the inventors to succeed? What need did the child inventors answer? Do their inventions affect us today? What qualities and skills helped the children come up with the inventions? Who helped them? What were the steps in creating the invention?
The learning process combines language skills, research, creative thinking, pedagogical skills and meeting the environment.
Throughout the course, the students will observe their environment, research and think about how they can contribute, change and improve the environment, the community and the world. This move may increase the students' sense of competence.

General goals:

- ✓ Practicing reading skills: reading and locating information, reading comprehension, solving questions
- ✓ Practicing writing skills: writing a letter, writing a recommendation for a patent, expressing an opinion
- ✓ Promoting social, cultural and ethical awareness: learning and practicing basic concepts in the fields of society, culture and ethics
- ✓ Experience in developing ideas through research and creative thinking processes that promote socio-cultural values
- ✓ Diversity in learning methods, discussion and research: class work, group work and independent work
- ✓ Development of reflective skills

The *each* principles

How are the *each* principles expressed in the teaching unit?

e — education & values

One of the goals of the unit is to introduce and expose the students to stories about child inventors. In this way, to inspire them, so that despite their young age, they can influence and change. To discover, what does it take to change and influence the environment, the community and the world?
The stories about the child inventors expose the learners to an array of qualities and life skills: (excellence, mental flexibility, perseverance, studying situations, coping with pressure, dealing with failure, learning from mistakes, competitiveness, leadership and faith, etc.), which may help them become inventors and entrepreneurs and thus influence their environment in the present and in the future.

a– academy

At the beginning of the unit, the learners will learn about children who invented inventions that advanced the world and learn facts. Following the study, the students will investigate and draw conclusions about the inventions themselves and the circumstances for their emergence. In the next step, students will identify a problem in their environment and try to find a solution. This action requires critical thinking skills and the ability to solve problems creatively and entrepreneurially. The solution will be the development of an invention that will promote and help a particular population. At the end of the development, the students will present their products to the community and the target population for which the invention was developed.

c—-community

In order to plan the invention, the students are required to observe and research the community around them and ask: Where is there a need? What is missing? What needs to be changed? What invention can help? Who will the invention help? What target population is it aimed at? How can I try to influence the community around me?

Thinking and acting for the other makes it possible not only to identify and notice the difficulty, but also to try to offer solutions.

"If we do the things that we are capable of doing, we will amaze ourselves" (unknown source)

h—-high tech

At the beginning of the unit, students will learn what an invention is and how it is developed. To this end, the students will search for information on the Internet, ask questions, draw conclusions, clarify needs, and investigate whether the invention exists and if so, how it can be improved and optimized. Students will practice planning an invention, registering a patent and presenting it to the community.

During the teaching of the unit, the teacher will schedule individual work and joint work for the students, which is an important skill in the development of initiatives. To this end, at the end of the unit, the teacher and the students will evaluate not only the final product (the invention) and the individual learning process, but also the group work.

Learning Resources

Prior knowledge: not required**.**

Learning and reference materials:

- Computers
- Art materials

Example of learning outcomes:

1. Inventions / patents
2. Community meeting
3. Collaborative exhibition
4. Videos

Lesson program/ study sessions

Introduction: knowledge base

- Lesson 1: Introduction - Children are inventors
- Lesson 2: Exploring the children's inventions
- Lesson 3: Introducing the inventive children and their inventions
- Lesson 4: Features of inventors and their emotions
- Lesson 5: Writing a thank-you letter to the inventors
- Lesson 6: Planning an invention
- Lesson 7: Registering a patent
- Lesson 8: Presenting our inventions
- Lesson 9: Reflecting on the study and experience

Program for Lesson 1

Introduction - Children are inventors					
Time	**each model principle**	**Terms**	**Activities**		**Teaching Course**
			Recommendations to the teacher	**Instructions to students**	
2 hours	Academy: The learning process requires establishing knowledge and facts, drawing conclusions.	Children's inventions	Introduction to the topic, to arouse curiosity and connection to the topic, class discussion. It is recommended to show videos about inventions.	Students will discuss: - Do you know children who have invented something? - Is it logical that children invent something and use it? - What do you think is an invention?	**Introduction**
			SLIDE 2	- The students will search and locate information on the Internet about each inventor that is written on Slide 2. - The students will research the inventor and the invention according to the instructions on the slide.	**Body of the lesson** **Practice and assessment**

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Program for Lesson 2

Exploring the children's inventions					
Time	**each model principle**	**Terms**	**Activities**		**Teaching Course**
			Recommendations to the teacher	**Instructions to students**	
2 hours	Academy: Students will experience different levels of thinking: searching for information online, writing, drawing conclusions and expressing an opinion.		Start with a connection to the previous lesson: What did we learn? What inventions did we see? Who were the inventors?	The students will participate in a discussion.	**Introduction**
			• SLIDE 3 • Allow independent work, in pairs or groups.	- The students will write the names of five children who invented something and what their invention was. - The students will choose one inventor and research him/her. - The students will write the name of the child inventor, the invention that he/she invented, what solution the invention provided, whether this invention is still used today, what is their opinion of the invention.	**Body of the lesson** **Practice and assessment**

Program for Lesson 3

Introducing the inventive children and their inventions					
Time	**each model principle**	**Terms**	**Activities**		**Teaching Course**
			Recommendations to the teacher	**Instructions to students**	
2 hours + 2 hours	Entrepreneurship: place-based learning, collaboration, peer feedback, creativity Community: promoting interpersonal interactions in the group and in the classroom, creating centers of influence in the school, commitment to the school community.		Repeat the instructions on slide 3.	The students will recall the inventors and the inventions they studied.	**Introduction**
			- SLIDE 4 - Independent work, in groups, in pairs	- The students will discuss in groups or pairs and think about how to present the inventors and the inventions they researched. - The students will present the inventors and the inventions they researched to the class (presentation). - The students will discuss how they will present their products in the school space: How will we present? What will we represent? Who will be invited?	**Body of the lesson** **Practice and assessment**

Program for Lesson 4

Features of inventors and their emotions					
Time	**each model principle**	**Terms**	**Activities**		**Teaching Course**
			Recommendations to the teacher	**Instructions to students**	
1 hour	Values: identifying the values and social responsibility that motivated the child inventors. Entrepreneurship: identifying traits of inventors - generating insights, mental flexibility, persistence		• It is recommended to show a video about children's inventions to arouse interest. • Allow time for thought.	Students will think about what character traits helped the children become inventors. What can help them?	**Introduction**
			• SLIDE 5 • To connect the child inventors with the students through reflective thinking • Stimulate emotional discourse • To allow independent work, in pairs and in groups	• The students will think and conclude what helped the children publish their idea? What were the motivations? What character traits are required? • The students will describe what feelings arise in them when they learn about the children who are inventors and what would they say to the children who invented the inventions? • The students will think and write on cards: What can help me invent? Who in my environment can help me? How do you start creating the idea? around the family? community? What are the needs of the society in which I live?	**Body of the lesson** **Practice and assessment**

Program for Lesson 5

Writing a thank-you letter to the inventors					
Time	**each model principle**	**Terms**	**Activities**		**Teaching Course**
			Recommendations to the teacher	**Instructions to students**	
2 hours	Values and community: writing the thank you letter evokes reciprocity, strengthening the community, gratitude. Academy: skill of writing a thank you letter	Thank-you letter	• Slide **7, 8** • Steps for writing a thank you letter, (a navigation card is attached) • To allow independent work, in pairs and in groups	• The student will write a letter of thanks to the inventors • The students will read the letters they wrote in class	**Introduction** **Practice and assessment**

Program for Lesson 6

Planning an invention					
Time	**each model principle**	**Terms**	**Activities**		**Teaching Course**
			Recommendations to the teacher	**Instructions to students**	
2 hours + 2 hours	Academy: Experience in designing the invention is actually a transition from theory to practice. Practical application of the information and knowledge gained from researching inventions. Values and community: The invention that the students will design will answer a certain need that they have identified in their environment. In this way, the students develop responsibility for the community and the environment.		• SLIDE 9 • Mediating the task: "After learning about inventors, it's our time to invent! Ready?" • The teacher will awaken the children's sense of ability. • After drawing the invention, create a scale model of the invention.	• Students will experience planning and developing an invention that meets a specific need in their environment: home, community, school, neighborhood, world • The students will investigate and explain what needs the invention meets. Why do you need the invention? Who needs it? Who are the people who will use it?	**Introduction** **Body of the lesson** **Practice and assessment**

Program for Lesson 7

Registering a patent				
Time	**each model principle**	**Terms**	**Activities**	**Teaching Course**
			Recommendations to the teacher / **Instructions to students**	
2 hours + 2 hours	Academy: The students will read, learn and practice what a patent is and what registration of patent is.	Patent Copyright	• **SLIDE 10** • Mediating the topic: "We created an invention! We have an idea! We managed to create a solution to something that didn't exist until now! How do you protect it? A patent? What does that mean?" • Allow independent work, in pairs and in groups.	• The students will learn what a patent is. Why do you need to write a patent? How do you write a patent? • The student will learn that even an idea has copyright. • The students will read a scientific text about a patent. • The students will write a request to patent their invention.	**Introduction** **Body of the lesson** **Practice and assessment**

Program for Lesson 8

Presenting our inventions					
Time	**each model principle**	**Terms**	**Activities**		**Teaching Course**
			Recommendations to the teacher	**Instructions to students**	
2 hours + 2 hours	Community and values: the invention and its presentation encourage responsibility for the community, development of interaction		• Slide 12 • Mediation of the mission: "*We invented something, we wrote a patent application. It's time to present our inventions and our ideas to the populations whose needs we answered.*" • Allow students to work independently, in pairs and in groups.	• The students will answer questions and plan the way of their presentation: - Who does the invention address? - Who is the target community? - How will we contact the community? - How will we present the inventions? (exhibition, videos, other ideas) • The students will present their invention to the target community to which the invention is directed.	**Introduction** **Body of the lesson** **Practice and assessment**

Program for Lesson 9

Reflecting on the study and experience					
Time	**each model principle**	**Terms**	**Activities**		**Teaching Course**
			Recommendations to the teacher	**Instructions to students**	
1 hour	A reflective observation on the four principles of the model		Encouraging dialogue and reflective thinking about the learning processes and experiences during the unit.	The students will think about the process they went through and express the emotions and feelings that they felt while learning: - How did you feel? - What did you learn from the unit? - What did you like about the unit? - What would you change? What would you add?	**Introduction** **Body of the lesson** **Practice and assessment**