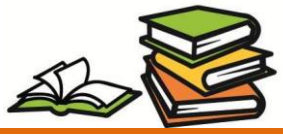
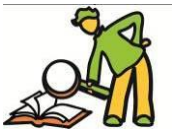
REAL LIFE

Age group	Secondary, Grades 1 – 4		
Competency features	Motivation to learning 	Sources of learning 	Processing information 
Aims	▪ to realize how often school knowledge is used in everyday life ▪ to learn how to better apply knowledge gained at school and/or elsewhere		
Timing	45 minutes		
Location	indoors		
Resources & materials	writing utensils, flipchart sheets, Worksheet - How to apply school knowledge in practice, Worksheet – Entry test, Worksheet - Cards, a bag of sweets (or other treats as rewards)		

Description

1. Before the exercise, teacher cuts the How to apply school knowledge in practice worksheet into slips, prints out three copies of the Cards worksheet and puts them in three envelopes.
2. Teacher leads in:

   "Do you ever feel as if you were learning things at school that you will never need in life? That you are sometimes wasting your time? Maybe you do not always realize that what you are doing at a particular moment is something you have learnt here."
3. Teacher splits the students into pairs, and hands out to each pair a slip from the How to apply school knowledge in practice worksheet. He tells them:

   "Think about what the needs and activities in your given area are, and discover how you use school knowledge and skills there. Make a note of knowledge and/or skill acquired at school, and how you apply it in practice. You have about five minutes to do so."

   <u>Helpful suggestions for teachers – Areas of application</u>
   a) Shopping (arithmetic, price comparison, calculating actual amount of discount given as percentage, adding and subtracting when handling money)
   b) House improvements (maths – replacing the carpet, tiles, painting the

interior; physics – electricity, etc.)
   c) Hobbies and pastimes (geography, history, etc.)
   d) Further studies/work (style and grammar, IT, foreign languages, specialist knowledge in various fields, etc.)
   e) Dating (literature – vocabulary, poetry, biology, etc.)
   f) Obtaining a student loan (basic economics, maths, etc.)

4. Teacher asks the pairs to present what they have got. He can encourage the others to complement the presenters with additional, relevant ideas. He makes a record on the flipchart of topics (curriculum subjects) that is being referred to. Finally, he sums up:

   „Obviously we will agree that some of the stuff you learn at school can be very handy in real life.“

5. Teacher hands out, face down, the Entry test worksheet, and tells the students not to flip it over yet:

   „Let us go back to what you learnt in the primary school, and what of it is useful to you as opposed to what is not. There are 13 topics on the list that you must have come across at your primary school. Tick every one of them accordingly to whether you use that knowledge or not. Do not contemplate much, since you only have one minute for this. Answer from the gut, and that is it. OK, turn your worksheets over and get cracking, now!“

6. Teacher does not allow more than one minute, and as soon as the time is up he bids the students to stop and put the paperwork aside. They will come back to it later.

7. Teacher splits the students into groups of three. Each threesome is given a blank flipchart sheet, envelope with the cut-up cards, felt-tip pen, and glue. Teacher instructs:

   „The envelope is full of cards with various laws and rules of physics and mathematics, their formulations, and also examples of practical application. Your task is to fish out the cards that belong to each other and glue them on the flipchart sheet. Apart from that you need to come up with yet another example of practical use of a given rule or law.“

8. Teacher tells the students that should they come up with more than one additional example, they will also be additionally rewarded. They have 15 minutes for the job.

9. Once the time is over, students and teacher together will check whether they have the correct sets laid out, and exchange all the examples of practical application they could think about. Teacher will give away rewards to those who have done better than required.

10. For homework, teacher asks the students to look up more practical applications of at least some of the rules and laws, to be presented during the next lesson.

<table>
<tr><td>Risks & recommendations</td><td>Teacher needs to be prepared to deal with arguments about the uselessness of some subjects taught.</td></tr>
<tr><td>Feedback</td><td>
<u>Questions for discussion:</u>

Did anything take you by surprise?
Did you ever come to think about the things you do on everyday basis in terms of what you have learnt at school, be it knowledge or skills?
Can you think about another example when you have made use of what you learnt previously?

Teacher manages the discussion towards a conclusion along the lines of: Sometimes we think that what we are being taught is boring and useless, but in fact, it is not the case.

<u>Helpful suggestions for teachers – Correct card arrangements</u>
<table>
<tr><td>Archimedes law</td><td>The apparent loss in weight of a body immersed in a fluid is equal to the weight of the displaced fluid.</td><td>I do not let my bathtub fill up because I know that once I get into it, the water level will rise.</td></tr>
<tr><td>Direct variation</td><td>Two variables related in such a way that their values always have a constant ratio directly vary. This applies to increase as well as decrease.</td><td>The faster the speed of a car, the longer its breaking distance.</td></tr>
<tr><td>Linear equation with one unknown</td><td>A + x = B
100/6 = 150/x</td><td>If I know the price of one kilogram of apples, I can calculate the price of 5 kilos.</td></tr>
<tr><td>Hardness scale</td><td>It measures what scratches what, and assigns hardness values to materials accordingly.</td><td>If I want to shape wood, I will use tools made of steel (iron).</td></tr>
<tr><td>Thermal conductivity</td><td>Ability of a material to conduct heat. It refers to the speed with which heat is transferred from warmer parts to other, colder parts.</td><td>To stir the soup cooking in a pot, I shall not use an aluminium spoon or I get burnt. I will take one made of stainless steel, or better still, wood.</td></tr>
<tr><td>Centrifugal force</td><td>The tendency of an object following a curved path to fly away from the centre</td><td>Extractor – through centrifugal force, it makes the washing dry.</td></tr>
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</td></tr>
</table>

		of curvature.	
	Law of reflection (optics)	When a ray of light strikes a plane mirror at an angle, the ray is reflected at the same angle.	Using a mirror, we can follow the traffic behind us without having to turn back.
	Volume temperature change (thermal expansion)	Thermal expansion is the tendency of matter to change in volume in response to a change in temperature. Change in temperature of a body leads to its dimensional change.	Thermometer – when temperature changes, the mercury column in glass rises and/or drops.
	Plane (area) calculation	Area of a square = a^2 Area of a rectangle = a * b	Buying a new carpet, floor area to be covered.
Inspired by	This exercise was inspired by similar exercises in the Competencies for the Labour Market project, and duly adjusted for the target group. RPIC-ViP, *Competency for Lifelong Learning: I learn, therefore I am*. Ostrava: RPIC-ViP Ltd, 2008. pp. 136.		
Application in classes	physics and maths		
Notes			

Worksheet

HOW TO APPLY SCHOOL KNOWLEDGE IN PRACTICE

Think about the needs and activities in your assigned area. Write down how you have made use in it of the knowledge and/or skills acquired at school.

Your area: Shopping

Think about the needs and activities in your assigned area. Write down how you have made use in it of the knowledge and/or skills acquired at school.

Your area: House improvements

Think about the needs and activities in your assigned area. Write down how you have made use in it of the knowledge and/or skills acquired at school.

Your area: Hobbies and pastimes

Think about the needs and activities in your assigned area. Write down how you have made use in it of the knowledge and/or skills acquired at school.

Your area: Further study/work

Think about the needs and activities in your assigned area. Write down how you have made use in it of the knowledge and/or skills acquired at school.

Your area: Dating

Think about the needs and activities in your assigned area. Write down how you have made use in it of the knowledge and/or skills acquired at school.

Your area: Obtaining a student loan

Worksheet
ENTRY TEST

Did you ever apply in practice the following rule or law of physics?	**Yes**	**No**
The apparent loss in weight of a body immersed in a fluid is equal to the weight of the displaced fluid.		
Two variables related in such a way that their values always have a constant ratio directly vary.		
100/6 = 150/x		
Hardness scale		
Ability of a material to conduct heat. Speed of the process.		
The force that causes an object following a curved path to fly away from the center of curvature.		
Angle of reflection is equal to angle of impact.		
Change in the temperature of a body leads to its dimensional change.		
Area of a rectangle = a * b.		
Thermodynamics: change in macroscopic properties of a thermodynamic system when a variable (e.g., temperature) changes.		

Worksheet
CARDS

Archimedes law	The apparent loss in weight of a body immersed in a fluid is equal to the weight of the displaced fluid.
I do not let my bathtub fill up because I know that once I get into it, the water level will rise.	Direct variation
Two variables related in such a way that their values always have a constant ratio directly vary. This applies to increase as well as decrease.	The faster the speed of a car, the longer its breaking distance.
Linear equation with one unknown	A + x = B 100/6 = 150/x
If I know the price of one kilogram of apples, I can calculate the price of 5 kilos.	Plane (area) calculation
Area of a square = a^2 Area of a rectangle = a * b	Buying a new carpet, floor area to be covered.
Hardness scale	It measures what scratches what, and assigns hardness values to materials accordingly.
If I want to shape wood, I will use tools made of steel (iron).	Thermal conductivity
Ability of a material to conduct heat. It refers to the speed with which heat is transferred from warmer parts to other, colder parts.	To stir the soup cooking in a pot, I shall not use an aluminium spoon or I get burnt. I will take one made of stainless steel, or better still, wood.

Centrifugal force	The tendency of an object following a curved path to fly away from the centre of curvature.
Extractor – through centrifugal force, it makes the washing dry.	Law of reflection (optics)
When a ray of light strikes a plane mirror at an angle, the ray is reflected at the same angle.	Using a mirror, we can follow the traffic behind us without having to turn back.
Volume temperature change (thermal expansion)	Thermal expansion is the tendency of matter to change in volume in response to a change in temperature. Change in temperature of a body leads to its dimensional change.
Thermometer – when temperature changes, the mercury column in glass rises and/or drops.	
Change of phase	Sudden change in macroscopic properties of a thermodynamic system (phase) when a variable changes.
Production of ice cubes from water.	Lever principle
Balanced moments at both arms of the lever.	If I cannot turn the key in a lock, I will turn not the key itself but the ring to which it is attached.