



<div><div><div><div>SUSTAINABLE LEARNING</div><div>BRIDGING THE GAP</div></div></div><div>Skills rubric sustainable learning - CATCH & STORE ENERGY</div><div><div>Co-funded by the European Union</div></div></div>									
Skill	Entry educator	Entry youngster	Basic educator	Basic youngster	Advanced educator	Advanced youngster	Assessment educator	Assessment Youngster	Validation
Name of the skill	What does the educator do before starting.	What does the youngster do before starting .	What does the educator do to coach towards (self) awareness and self esteem.	What does the youngster do to grow towards (self) awarenesss and self esteem. A youngster at a basic level should have practiced but still need coaching to perform independently.	What does the educator do to coach towards master the skill.	What does the youngster do to master the skill A youngster at this level can perform the skill independently in different situations.	What does the educator do to assess the skill?	What does the youngster do to get the skill assessed. A youngster at this level can perform independently and reflect on their abilities.	
Catch & Store energy	The educator delves into the skill and the accompanying abilities. He thinks about how the skill can be useful for the youngsters. He processes the skill in a learning activity. The theme of "Energy Resources" requires a multidisciplinary approach and a set of skills that allow us to understand the current and future challenges related to the production, distribution and sustainable use of energy. It includes a very broad panorama of knowledge that ranges from science (physics, chemistry, geology, environmental sciences) to engineering, from economics to data analysis and telecommunications. The skills involved are also very complex and articulated, ranging from communication, to continuous learning, to project management and evaluation systems. In our grid we include the knowledge and skills that we believe can be acquired independently from a specific formal academic technical path. In fact practical skills and specific technical knowledge (such as the design of complex energy plants or advanced data analysis) require structured and certified engineering or scientific training.	1. Think about what do I know about this skill. 2. How am I with catch&Store energy? 3. What do I want to know/learn?	The educator looks, after the activity at which knowledges and abilities about the topic he has seen in the youngster. What can a youngster already do? He discusses this as concretely as possible with the youngster. This does not mean that a youngster should already be able to do everything, but that the educator focuses on which skills he has already seen.	Reflect after the activity. Do you have a better idea of what the skill is about and how you deal with this skill (direct applications)? Are you able to apply knowledges and skills in simple and familiar situations with guidance from someone else and specific instructions?	The educator knows which behavior goes with each ability of the skill. He can discuss with a youngster what he/she has to do to achieve a skill. He uses the abilities as described in the Skills grid. The educator uses the following basics: the youngster understands the different skills. He has applied the different skills in different situations. The youngster is able to reflect on his own actions.	Look at the different abilities of this skill and determine for yourself what you can already do and what you still need to learn. If necessary, discuss with your educator how you can work on an ability. Collect evidence of your acquired ability. This can be done in different ways.	Using the pre-established criteria per objective, see what evidence you want to see to determine whether a young person has mastered the skill. This involves: - Does a young person understand what it is about? - Has he applied the skill in different situations? - Can the young person reflect on his learning process and how he applies this skill?	Provide evidence of your proficiency. You may choose how you demonstrate that you are able to: - understand what produce no waste is about and what abilities you need to master. - apply the abilities of producing no waste in different situations. - reflect on your learning process and how you did this.	The abilities belonging to producing no waste are described in BadgeCraft. The educator and the youngster have had instruction on how to use Badge Craft. When a Youngster thinks he has mastered the ability, he goes to Badgecraft and provides proof of his acquired skill. The educator checks whether this is enough to award the badge or gives additional instruction.
Evaluate energy availability	collect information on: 1. Energy Sources and Energy Flow 2. Methods and tools for measuring and monitoring energy consumption 3.Analyze consumption habits and identify areas where it is possible to reduce it 4. Analyze and verify the presence and availability of energy sources 5. Decide how these abilities can be of use for the youngster and how you can integrate these abilities in a learning activity	Do I pay attention to energy consumption and energy efficiency at home or at workplace? Am I in the habit of monitoring energy consumption? What I want to learn about this topic?	Did you find that the student has a basic knowledge of energy consumption? Is the youngster able to analyze his/her own habits on energy consumption and to identify areas for improvement. Does the young person usually pay attention to his/her energy consumption? If so, reflect on this with the youngster and be as concrete as possible.	Do you know more about energy consumption and methods for measuring it? During the activity, have you been able to analyze your energy consumption in daily life and to identify ways to measure and monitor it? Are you aware of the negative effects of energy use on ecosystems, climate change, and human health? Do you know more about the characteristics of different energy sources and their availability in your context ? REQUIREMENTS -1.Knowledge of the different energy sources available, both renewable (solar, wind, hydroelectric, geothermal, biomass) and non-renewable (fossil fuels, nuclear). - 2.Understanding basic economic concepts related to energy, such as production costs, market prices, investments, subsidies, supply and demand. - 3.Understanding the environmental impacts associated with the production and use of different energy sources, including air pollution, climate change, resource depletion, and impacts on ecosystems. -4.Ability to collect, analyze and interpret data relating to energy production, consumption and reserves about his/her own consumption.	Discuss with the youngster on how can/could he/she practice with the ability to measure and monitor energy consumption in everyday life. In what kind of situations can he/she practice this and how can others see that he uses these abilities?	Have a look at your ability to measure and monitor energy consumption in every moment of your life, in different context and situations, including complex and unfamiliar ones. Are you able to recognize the different way and habits to use energy? Are you able to solve problems and make informed decisions on this topic? Are you able to adapt knowledge to new contexts and generate new ideas? What have you already mastered and what do you need to practice?. Discuss with your educator on how you can practice the ability. In what kind of situations can you practice this and how can others see that you use these abilities? REQUIREMENTS -1.Understanding the principles of sustainable development and the need to balance current and future energy needs. -2.Ability to critically analyze information, identify complex problems related to energy availability and propose effective solutions. -3.Familiarity with data analysis software, data visualization tools -4. Ability to follow the trend of fuel and electricity prices. -5.Understanding economic concepts related to energy, such as production costs, market prices, investments, subsidies, supply and demand.	Did the youngster show the ability to measure and monitor energy consumption in a correct way? Did he/she show the ability to monitor his/her own energy consumption, and introduce methods to reduce it? Is he/she able to use tools and methods for data anlysis? Does he/she kno what the ability is about?. Is he/she able to apply the ability in different situations? Is the youngster able to reflect on his/her own actions?	Collect evidence of your development and ability in monitor and measure energy consumption and energy availability in your context. Show that you understand what it entails. That you have applied these skills in different situations and autonomously.	The youngster can upload his collected evidence in BadgeCraft and the educator can judge on this basis (and what he has seen in practice) whether the youngster has achieved the ability or whether he needs to do something additional. If the ability is achieved, the educator can award the Open Badge.

Implement methods to capture energy from various sources	<p>Collect information on: 1. Basic Principles of Different Energy Sources 2. Basic Principles of Electricity: 3. Base security. 4. Technical operating principles of energy production systems (solar thermal, photovoltaic, wind, ...).</p> <p>Decide how these abilities can be of use for the youngster and how you can integrate these abilities in a learning activity.</p>	<p>Do I know the different possibilities for producing energy locally? Are there energy production systems in my home or work environment? If so, do I know their operating principles?? What I want to learn about this topic?</p>	<p>Does the young person know the possibilities of producing energy locally? Is he/she aware of the resources available in his/her immediate environment? Does he/she know methods, costs, time required and professionals needed to install a local energy production system?Does he/she apply it or has he/she seen it applied in his/her experience? If so, reflect on this with the youngster and be as concrete as possible.</p>	<p>Do you know anything more about energy sources and their availability in your own context? How could energy production system could be implemented at your home/workplace? What technical aspects, costs and timing should you take into consideration?</p> <p>REQUIREMENTS</p> <p>-1. Knowledge of the different energy sources available, both renewable (solar, wind, hydroelectric, geothermal, biomass) and non-renewable (fossil fuels, nuclear) - 2.basic principles of energy transformation -3. basic principles of electricity -4. ability to distinguish and describe the general characteristics of local energy production systems -5. costs and professionalism involved in the ceration of a local energy production system. -5. safety elements.</p>	<p>Discuss with the youngster on how can/could he/she practice with the ability to capture and produce energy in everyday life. In what kind of situations can he/she practice this and how can others see that he/she uses these abilities?</p>	<p>Have a look at your ability to capture and produce energy in your life. Are you able to recognize different types of energy sources and do you know the way to use them to produce energy? Are you able to solve problems and make informed decisions on this topic? Are you able to adapt knowledge to new contexts and generate new ideas?</p> <p>What have you already mastered and what do you need to practice?. Discuss with your educator on how you can practice the ability. In what kind of situations can you practice this and how can others see that you use these abilities? REQUIREMENTS</p> <p>- Deep and articulated knowledge of the different types of energy sources. -Knowledge of principles of energy transformation and use. -Principles of risk prevention and health safety.</p>	<p>Did the youngster show the ability to recognize and implement methods to capture and produce energy locally? Did he/she show the ability to identify different types of energy sources and autonomously plan the different necessary steps to realize systems to produce energy locally? Does he/she know what the ability is about. Is he/she able to apply the ability in different situations? Is the youngster able to reflect on his/her own actions?</p>	<p>Collect evidence of your development and ability in implement methods to capure energy. Show that you understand what it entails. That you have applied these skills autonomously.</p>	<p>The youngster can upload his collected evidence in BadgeCraft and the educator can judge on this basis (and what he has seen in practice) whether the youngster has achieved the ability or whether he needs to do something additional. If the ability is achieved, the educator can award the Open Badge.</p>
Select and implement appropriate energy storage solutions	<p>Collect information on: 1. Basic Principles of Different Energy Sources 2. Basic Principles of Electricity: 3. Safety regulations. 4. Storage systems that can be used locally and domestically 5.Technical operating principles of energy storage systems. Decide how these abilities can be of use for the youngster and how you can integrate these abilities in a learning activity</p>	<p>Do I know something about the possibility to store energy locally? Are there energy storing systems in my home or work environment? If so, do I know their operating principles?? What I want to learn about this topic?</p>	<p>Does the young person know the possibilities of storing energy locally? Is he/she aware of the resources available in his/her immediate environment? Does he/she know methods, costs, time required and professionals needed to install a local energy storage system?Does he/she apply it or has he/she seen it applied in his/her experience? If so, reflect on this with the youngster and be as concrete as possible.</p>	<p>Do you know anything more about energy storage systems and their availability in your own context? How could energy storage system coule be implemented at your home/workplace? What technical aspects, costs and timing should you take into consideration?</p> <p>REQUIREMENTS</p> <p>-1. Knowledge of the different energy sources available, both renewable (solar, wind, hydroelectric, geothermal, biomass) and non-renewable (fossil fuels, nuclear) -2.basic principles of energy transformation -3. basic principles of electricity -4. ability to distinguish and describe the general characteristics of local energy storage systems -5. costs and professionalism involved in the design of a local energy sorage system. -5. safety elements</p>	<p>Discuss with the youngster on how can/could he/she practice with the ability to store energy in everyday life. In what kind of situations can he/ she practice this and how can others see that he/she uses these abilities?</p>	<p>Have a look at your ability to store energy in your life. Are you able to recognize different types of energy storage systems and do you know the way to use them to store energy? Are you able to solve problems and make informed decisions on this topic? Are you able to adapt knowledge to new contexts and generate new ideas? What have you already mastered and what do you need to practice? Discuss with your educator on how you can practice this and how can others see that you use these abilities? REQUIREMENTS</p> <p>-Deep and articulated knowledge of the different types of energy sources. -Knowledge of principles of energy transformation and use. -Knowledge of storage systems that can be used locally and domestically . -Basic knowledge of technical operating principles of energy storage systems. -Principles of risk prevention and health safety.</p>	<p>Did the youngster show the ability to recognize methods to store energy locally and to identify the step needed to realize an energy storage system? Did he/she show the ability to identify different types of energy sources and autonomously plan the different necessary steps to realize systems to store energy locally? Does he/she know what the ability is about? Is he/she able to apply the ability in different situations? Is the youngster able to reflect on his/her own actions?</p>	<p>Collect evidence of your development and ability in implement methods to store energy. Show that you understand what it entails. That you have applied these skills autonomously.</p>	<p>The youngster can upload his collected evidence in BadgeCraft and the educator can judge on this basis (and what he has seen in practice) whether the youngster has achieved the ability or whether he needs to do something additional. If the ability is achieved, the educator can award the Open Badge.</p>

Design and optimize systems to maximize energy efficiency and minimize waste.	Collect information on: 1. Basic Principles of Different Energy Sources 2. Methods to Identify and Quantify Inefficiencies and Wastes 3.Methods and tools to monitor and evaluate performances 4. Technical operating principles of energy production systems 5. Principles of Sustainability and Circular Economy: Decide how these abilities can be of use for the youngster and how you can integrate these abilities in a learning activity.	Are there energy production systems in my home or work environment? If so, do I know their operating principles? Am I able to evaluate the efficiency of the energy systems I use on a daily basis? What I want to learn about this topic?	Is the young person able to identify elements that can influence the energy efficiency of any system? Does the young person know technical tools for measuring data and evaluating the performance of an energy system? Does he/she apply it or has he/she seen it applied in his/her experience? If so, reflect on this with the youngster and be as concrete as possible.	Do you know anything more about energy systems to capture and store energy ? Are you able to identify methods to evaluate their performances? Do you usually think about solutions to save energy and reduce energy waste? REQUIREMENTS -1. Knowledge of the different energy sources available -2. Ability to identify and describe the general characteristics of local energy production systems -3. Statistics and Data Analysis (Basic Concepts). -4. Ability to apply simple solutions to save energy at home and at the workplace (such as optimize home lighting; improve the thermal insulation of his/her own home/workplace; Manage water use efficiently).	Discuss with the youngster on how can/could he/she practice with the ability to optimize systems to maximize energy efficiency in everyday life. In what kind of situations can he/she practice this and how can others see that he/she uses these abilities?	Have a look at your ability to optimize systems to maximize energy efficiency in everyday life. Are you able to recognize the general characteristics of energy production and storage systems in your context? Do you know methods and tools to analyze the energy efficiency of energy production systems in your living and working context? Are you able to identify solutions to improve the energy efficiency of systems, while reducing energy waste as much as possible? Are you able to make informed decisions on this topic? Are you able to adapt knowledge to new contexts and generate new ideas? What have you already mastered and what do you need to practice? Discuss with your educator how you can practice the ability. In what kind of situations can you practice this and how can others see that you use these abilities? REQUIREMENTS -1.Ability to evaluate the technical and economic feasibility of energy systems in the local context, considering costs, benefits, risks and opportunities. -2. Knowledge of the different energy sources available -3. ability to identify and describe the general characteristics of local energy production systems -4. Statistics and Data Analysis (Basic Concepts). --5. Ability to apply solutions and to save energy at home and at the workplace (such as optimize home lighting; improve the thermal insulation of his/her own home/workplace; Manage water use efficiently)-6. Knowledge of energy communities and relevant legislation.	Does the youngster show the ability to optimize systems to maximize energy efficiency? Is he/she able to recognize the general characteristics of energy production and storage systems in his/her context? Does he/she know methods and tools to analyze the energy efficiency of energy production systems in his/her living and working context? Is he/she able to identify solutions to improve the energy efficiency of systems, while reducing energy waste as much as possible? Is he/she able to make informed decisions on this topic? Is he/she able to adapt knowledge to new contexts and generate new ideas? Do they show these abilities in an effective and autonomous way? Do they know what the ability is about? Is he/she able to apply the ability in different situations? Is the youngster able to reflect on his/her own actions?	Collect evidence of your development and ability in design and optimize systems to maximize energy efficiency and minimize waste. Show that you understand what it entails and that you have applied these skills in different situations and autonomously.	The youngster can upload his collected evidence in BadgeCraft and the educator can judge on this basis (and what he has seen in practice) whether the youngster has achieved the ability or whether he needs to do something additional. If the ability is achieved, the educator can award the Open Badge.
Energy monitoring	Collect information on: techniques and tools to observe and quantify data relating to energy production and consumption; ability to use measurement tools. Decide how these abilities can be of use for the youngster and how you can integrate these abilities in a learning activity.	In my daily experience, do I monitor my energy consumption? If I use energy production systems (at home or in my workplace), am I able to monitor their performance?What I want to learn about this topic?	Did you find that the youngster has a basic knowledge of energy consumption? Is the youngster able to analyze his/her own habits on energy consumption and to identify areas for improvement. Does he/she usually monitor his/her energy consumption or production in his/her own context? If so, reflect on this with the youngster and be as concrete as possible.	Do you know more about energy consumption and methods for measuring and monitoring it? During the activity, have you been able to analyze your energy consumption in daily life and identify ways to measure and monitor it? Are you aware of the negative effects of energy use on ecosystems, climate change, and human health? REQUIREMENTS -1. Under guidance, ability to collect, analyze and interpret data relating to energy production, consumption and reserves, about his/her own consumption. -2. basic ability to use measurement tools. -3. Under guidance, creation of graphs and tables relating to energy consumption and production.	Discuss with the youngster on how can/could he/she practice with the ability to monitor energy consumption and production during his/her everyday life. In what kind of situations can he/she practice this and how can others see that he uses these abilities?	Have a look at your ability to measure and monitor energy consumption in every moment of your life, in different context and situations, including complex and unfamiliar ones. Are you able to apply methods and tools to monitor energy production and consumption? Are you able to solve problems and make informed decisions on this topic? Are you able to adapt knowledge to new contexts and generate new ideas? What have you already mastered and what do you need to practice. Discuss with your educator on how you can practice the ability. In what kind of situations can you practice this and how can others see that you use these abilities? REQUIREMENTS -1.Understanding the principles of sustainable development and the need to balance current and future energy needs. -2.Familiarity with data analysis software and data visualization tools -3. Autonomous creation of graphs and tables relating to energy consumption and production. -4.Ability to follow the trend of fuel and electricity prices.	Did the youngster show the ability to measure and monitor energy consumption and production in a correct way? Did he/she show the ability to monitor his/her own energy consumption, using tools and methods for data analysis? Does he/she know what the ability is about. Is he/she able to apply the ability in different situations? Is the youngster able to reflect on his/her own actions?	Collect evidence of your development and ability in monitor and measure energy consumption and energy production in your context. Show that you understand what it entails. That you have applied these skills in different situations and autonomously.	The youngster can upload his collected evidence in BadgeCraft and the educator can judge on this basis (and what he has seen in practice) whether the youngster has achieved the ability or whether he needs to do something additional. If the ability is achieved, the educator can award the Open Badge.