



S U
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Short course:

DESIGN FOR SUSTAINABLE LIVING

Enabling Professionals and Families to Transfer
Sustainable Knowledge and Skills to Down
Syndrome Individuals

ERASMUS+ KA201
STRATEGIC PARTNERSHIPS FOR SCHOOL EDUCATION



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EXECUTIVE SUMMARY

This document comprises the deliverable of the Intellectual output O3 “DEVELOPMENT OF A COURSE VALIDATED AND RECOGNISED BY THE NATIONAL FRAMEWORKS OF QUALIFICATIONS”.

The objective of this task is to develop a Pilot Course that students participating in the Junior Cycle Level 2 Learning Programmes can access as part of their programme. Thus, a method to assess the student’s knowledge, skills, understanding and values developed through participating in this course will be considered as part of this course assessment.

The document first introduces the concept of Junior Cycle, in which this short course is included (Section 1). Subsequently, the rationale (justification) and the aim of the short course are explained in sections 2 and 3 respectively. Thereafter, section 4 focuses on the overview of the course Design for sustainable living, for which the main learning outcomes are described in section 5. The links with this course with the central features of learning and teaching in junior cycle are provided in section 6. Finally, sections 7 and 8 provide the guidelines and the arrangements to assess the course, also taking into consideration the implementation of measures to enable all students to access curriculum and assessment based on specific needs.

In the Annexes, Appendix I to III in this deliverable gather the level indicators for Level 1, 2 and 3 of the National Framework of Qualifications (NFQ) so that learning associated with the program is fully recognised. However, the results would be applicable to the other official European qualifications.

On the other hand, Appendix IV collects different examples of activities that can be carried out in the course, which are aligned with Strand 2 and 4 of the Virtual Learning Environment that constitutes the Intellectual Output 2 of SUSKIDS project.



ACRONYMS

ASDB	Asociación Síndrome de Down Burgos.
BJL	Bjäländ
DS	Down Syndrome
EU	European Union
ICT	Information and Communication Technologies
KVC	Kveloce I+D+i
NCCA	National Council for Curriculum and Assessment
SCS	Sustainability Concepts and Skills
SOL	Statements of Learning
TCD	Trinity College Dublin
UBU	University of Burgos
UCLL	UC Leuven-Limburg
VLE	Virtual Learning Environment



1 INTRODUCTION TO JUNIOR CYCLE

Junior cycle education places students at the centre of the educational experience, enabling them to actively participate in their communities and in society and to be resourceful and confident learners in all aspects and stages of their lives. Junior cycle is inclusive of all students and contributes to equality of opportunity, participation and outcome for all.

The junior cycle allows students to make a greater connection with learning by focusing on the quality of learning that takes place and by offering experiences that are engaging and enjoyable for them, and relevant to their lives. These experiences are of a high quality, contribute directly to the physical, mental and social wellbeing of learners, and where possible, provide opportunities for them to develop their abilities and talents in the areas of creativity, innovation and enterprise. The learner's junior cycle programme builds on their learning to date and actively supports their progress in learning and in addition, supports them in developing the learning skills that will assist them in meeting the challenges of life beyond school.

2 RATIONALE

Learning through the lens of sustainability is a fundamental feature of education for sustainable development. It is important that students can design and create today without compromising the needs of the student of tomorrow. Education for sustainable development will develop and strengthen the capacity of students, as individuals and members of groups, communities and organisations to make judgements and choices in favour of sustainable development. It can promote a shift in student's mindsets and enable them to make our world safer, healthier and more prosperous, thereby improving quality of life for everyone. This short course builds on the above ideas and promotes the development of a range of personal, social and practical skills in the context of learning about sustainability in the local and global environment. It will empower students to actively engage with sustainable practices and use the skills developed to design for sustainable living.

3 AIM

The short course aims to enable and empower students to:

- understand waste reduction and recycling
- be aware of the need for sustainability in their local setting or community
- actively engage in the local and wider community
- analyse the use of materials in built objects



- design and realise an artefact of their own creation¹.

4 OVERVIEW: COURSE

These strands were developed to take the student on a journey to explore sustainability through the lens of:

- The local environment
- Design
- Realisation

The learning outcomes in the three stands, combined with the learning outcomes from the unifying strand, give students a multifaceted experience of sustainability. This short course uses an interdisciplinary approach which encourages the integration of strands as part of the teaching and learning. The CBA is a reflection on the culmination of the students' work throughout this course.

Therefore, students should keep a record of their work as they progress through the course. This can include, journal entries, photos, videos, completed task work and artefacts.

4.1 Strand 1: Sustainability through the local environment.

In this strand, students will develop the necessary skills to explore their local or community setting to identify materials and sustainable practices around them in structures, facilities and built objects. Students will act as active participants by delivering a sustainable initiative(s) in a setting of their choice.

4.2 Strand 2: Sustainability through design

In this strand, students will develop design skills through the lens of sustainability. They will be enabled and supported in researching and making judgements about the properties and suitability of use of a range of materials. Students will put into practice their understanding of materials through structured planning for the later realisation of an artefact.

¹ An artefact in this specification refers to a realised piece of work with a specific purpose or function



4.3 Strand 3: Sustainability through realisation

In this strand, students will develop the necessary skills to realise an artefact of purpose using suitable recycled material. They will be encouraged to integrate the skills developed from strand two and refine their artefacts through an iterative design process.

The course has been designed for approximately 100 hours of student engagement.

5 LEARNING OUTCOMES

Learning outcomes are statements that describe what knowledge, understanding, skills and values students should be able to demonstrate having completed this junior cycle short course.

The learning outcomes set out in the following tables apply to all students and represent outcomes for students at the end of their period of study. The learning outcomes are universally designed to enable students and teachers to engage with them at level 1, 2 or 3. The outcomes are numbered within each strand. The numbering is intended to support teacher planning in the first instance and does not imply any hierarchy of importance across the outcomes themselves.

5.1 Unifying Strand : Sustainability Concepts and Skills (SCS)

The following learning outcomes underpin the contextual learning outlined in the three strands and form the basis for all planning for teaching and learning in this short course (Table 1)Table 1. Unifying Strand.

Table 1. Unifying Strand

Students learn about	Students should be able to:
	SCS.1 investigate sustainable practices and use of materials around them SCS.2 analyse materials based on their properties and uses SCS.3 interpret representations of data/information SCS.4 adhere to, and include, safety precautions as part of their work SCS.5 incorporate reflective techniques throughout their work SCS.6 communicate using the most suitable medium



5.2 Strand 1 : Sustainability through the local environment

Students should engage with the learning outcomes outlined in SCS 1-6 through the contextual experiences offered by Sustainability through the local environment (Table 2).

Table 2. Strand 1. Sustainability through the local environment

Students learn about	Students should be able to:
Being sustainable participants within their local setting or community.	1.1 examine their local setting or community to identify sustainable needs 1.2 plan and develop an initiative that delivers a specific sustainable action 1.3 present their ideas/thoughts to an audience 1.4 implement an initiative individually or a part of a team 1.5 evaluate their own work on completion of a task

5.3 Strand 2: Sustainability through design

Students should engage with the learning outcomes outlined in SCS 1-6 through the contextual experiences offered by Sustainability through design (Table 3).

Table 3. Strand 2. Sustainability through design

Students learn about	Students should be able to:
The necessary skills to research and plan actions that will lead to the later realisation of an artefact.	2.1 research solutions to a design problem 2.2 progress their ideas to form a solution 2.3 incorporate upcycling into a solution design 2.4 plan and present a structured approach to solving a problem 2.5 test and evaluate the suitability of a range of materials 2.6 iteratively engage with a design process



5.4 Strand 3: Sustainability through realisation

Students should engage with the learning outcomes outlined in SCS 1-6 through the contextual experiences offered by Sustainability through realisation(Table 4).

Table 4. Strand 3: Sustainability through realisation

Students learn about	Students should be able to:
The necessary skills to realise an artefact derived from their own developed plans.	3.1 identify a range of assembly techniques 3.2 develop a strategy to gather materials for sustainable reuse 3.3 use a range of tools/equipment to realise an artefact 3.4 evaluate their realised artefact

6 LINKS

Table 5 and Table 6 on the following pages show how design for sustainable living may be linked to central features of learning and teaching in junior cycle.

Table 5. Links between junior cycle design for sustainable living and the Statements of learning (SOL).

Statement	Examples of relevant learning in the course
SOL 1: <i>The student communicates effectively using a variety of means in a range of contexts</i>	After exploring sustainable activities in their individual setting, students communicate their findings through any appropriate medium. As they develop a plan, students will refine their ideas/thinking through discussions and conversations about their work.
SOL 9: <i>The student understands the origins and impacts of environmental aspects of the world around her/him.</i>	Students examine their local setting or community for examples of sustainable practices. Students take part in activities that explore areas where there is a need to introduce a sustainable practice.



<p>SOL 7: <i>The student values what it means to be an active citizen, with rights and responsibilities in local and wider contexts.</i></p>	<p>Students develop an understanding on how to become active sustainable citizens by engaging in a range of activities in their local setting or community,</p>
<p>SOL 23: <i>The student brings an idea from conception to realisation.</i></p>	<p>As they work on a design brief, students must develop a plan to identify a response that will be produced as an artefact or built object.</p> <p>Students develop ideas on how to engage in developing and leading the enactment of a classroom initiative.</p>

6.1 Design for sustainable living and key skills:

In addition to their specific content and knowledge, the subjects and short courses of junior cycle provide students with opportunities to develop a range of key skills. The junior cycle curriculum focuses on eight key skills: Being literate; Managing myself; Staying well; Managing information and thinking; Being numerate; Being creative; Working with others and Communicating.

This course offers opportunities to support all key skills, but some are particularly significant. The examples below identify some of the elements that are related to learning activities in design for sustainable living. Teachers can also build many of the other elements of particular key skills into their classroom planning.



Table 6. Links between junior cycle design for sustainable living and key skills

Key skill	Key skill element	Student learning activity
Being literate	Expressing ideas clearly and accurately.	Students will select the most appropriate media to communicate their thinking during a task.
	Developing my spoken language.	Through their research, students will develop an understanding of keywords associated with sustainability i.e. climate action, recycling, renewable to use as part of my conversations
Managing myself	Making considered decisions.	Students make decisions on materials they use as part of their work based on the suitability of their properties for the task.
	Setting and achieving personal goals	Students will develop structured plans that will identify tasks for them that they must take action on
Staying well	Being social.	As part of the development of being an active participant in their local setting or community, students will engage with other members of the setting or community.
	Being confident.	
Managing information and thinking	Gathering, recording, organising and evaluating information and data.	Through research techniques, students will gather information to inform their design task.
	Thinking creatively and critically.	Students developing a solution of their own creation to a given problem and justifying their solution.
	Reflecting on and evaluating my learning	Student engaging in reflective practices at various stages throughout their work.



Key skill	Key skill element	Student learning activity
Being numerate	Developing a positive disposition towards investigating, reasoning and problem solving.	Students explore methods to reduce quantities of waste. Students using calculations to measure wait
Being creative	Imagining. Exploring options and alternatives Implementing ideas and taking action.	Students engage with design tasks that encourage self-creation, innovation and iteration. Students develop an artefact that is derived from a plan and design of their own creation.
Working with others	Contributing to make the world a better place. Learning with others. Working with others through digital technology.	Students participates in activities that raise the awareness of others of climate action issue. As part of a group, students research topics that are related to sustainability and discuss them together.
Communicating	Using language. Using numbers. Using digital technology to communicate.	To communicate their work, students use a range of methods that best represents their work. Students use digital visuals to communicate their thinking.

7 ASSESSMENT AND REPORTING

This short course supports varied approaches to assessment. Some learning outcomes lend themselves to once-off assessment, others to assessment on an on-going basis as students engage in different learning activities such as discussing, explaining, researching, presenting, planning and taking action. In these contexts, students with their teachers and peers reflect upon and make judgements about their own and others' learning by looking at the quality of their work. On-going assessment supports the



students across the 3 levels of the Junior Cycle programme and prepares them for the Classroom based assessment that is related to this short course.

It is envisaged that students will have evidence of their learning in varied formats which include but is not limited to e-books, photographs, video, audio recordings, written pieces, portfolios of work, practical activities and differentiated tasks depending on the student level and the pathway they are engaging with.

7.1 Classroom-Based Assessment

Classroom-Based Assessments are the occasions when the teacher assesses the students in the specific assessment(s) that are set out in the subject or short course specification. Junior cycle short courses at levels 1, 2 and 3 will have one Classroom-Based Assessment. Where feasible, teachers of short courses will participate in learning and assessment review meetings.

Classroom–Based Assessment: Sustainability in action.

This Classroom-Based Assessment is a reflection task based on the participation and learning of the individual student throughout the study of this short course. For example, student may reflect on:

- key moments of learning from the course
- challenges they faced and how these challenges were overcome
- their contribution in specific a specific task(s)
- personal achievements gained from their participation in this short course.

The reflection task should include aspects from all three strands of the short course.

Students will capture the various experiences they had through a learning log that will be presented on completion of the short course. The learning log can be produced in a suitable format, to be decided upon in agreement with the teacher that captures the student’s work throughout the Classroom-Based Assessment. The learning log can be produced in any format that is appropriate for capturing the reflections of the students. For example:

- in written form, such as a report
- in digital form, such as a blog, a video or slide presentation
- in visual form, such as a graphic presentation, a model or a display
- in audio form, such as a podcast or a voice-over.



This list is not intended to be exhaustive but serves to offer suggestions as to the possible choices in developing the learning log. Students may choose to use a combination of approaches in presenting their learning log.

8 ASSESSMENT ARRANGEMENTS

Assessment practices, whether as part of ongoing assessment or the Classroom-Based Assessment, are a key feature of teaching and learning in schools. Assessment arrangements for students, e.g. the support provided by a special needs assistant or the support of assistive technologies, should be in line with the arrangements the school has put in place to support the student's learning throughout the year.

Where a school judges that a student has a specific physical or learning difficulty, appropriate assessment arrangements may be put in place to remove, as far as possible, the impact of the disability on the student's performance in the Classroom-Based Assessment. Such accommodations which enable all students to access curriculum and assessment are based on specific needs.

[Comprehensive guidelines for schools](#) and an interactive version of the [Inclusive Education Framework](#) provide further information on supportive assessment practices.

ANNEXES



Appendix I : Level indicators for Level 1 of the National Framework of Qualifications (QQI)

This short course has been developed in alignment with the level indicators for Level 1 of the National Framework of Qualifications. For Level 1 certification and awards, the knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.

NFQ Level	1
Knowledge <i>Breadth</i>	Elementary knowledge
Knowledge <i>Kind</i>	Demonstratable by recognition or recall
Know-how and skill <i>Range</i>	Demonstrate basic practical skills and carry out directed activity using basic tools
Know-how and skill <i>Selectivity</i>	Perform processes that are repetitive and predictable
Competence <i>Context</i>	Act in closely defined and highly structured contexts
Competence <i>Role</i>	Act in a limited range of roles
Competence <i>Learning to learn</i>	Learn to sequence learning tasks; learn to access and use a range of learning resources
Competence <i>Insight</i>	Begin to demonstrate awareness of independent role for self

Appendix II : Level indicators for Level 2 of the National Framework of Qualifications (QQI)

This short course has been developed in alignment with the level indicators for Level 2 of the National Framework of Qualifications. For Level 2 certification and awards, the knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.

NFQ Level	2
Knowledge <i>Breadth</i>	Knowledge that is narrow in range
Knowledge <i>Kind</i>	Concrete in reference and basic in comprehension
Know-how and skill <i>Range</i>	Demonstrate limited range of basic, practical skills, including the use of relevant tools
Know-how and skill <i>Selectivity</i>	Perform a sequence of tasks given clear direction
Competence <i>Context</i>	Act in a limited range of predictable and structured contexts
Competence <i>Role</i>	Act in a range of roles, under direction
Competence <i>Learning to learn</i>	Learn to learn in a disciplined manner in a well-structured and supervised environment
Competence <i>Insight</i>	Demonstrate awareness of independent role for self



Appendix III : Level indicators for Level 3 of the National Framework of Qualifications (QQI)

This short course has been developed in alignment with the level indicators for Level 3 of the National Framework of Qualifications. Usually, for Level 3 certification and awards, the knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.

NFQ Level	3
Knowledge <i>Breadth</i>	Knowledge that is narrow in range
Knowledge <i>Kind</i>	Concrete in reference and basic in comprehension
Know-how and skill <i>Range</i>	Demonstrate limited range of basic, practical skills, including the use of relevant tools
Know-how and skill <i>Selectivity</i>	Perform a sequence of tasks given clear direction
Competence <i>Context</i>	Act in a limited range of predictable and structured contexts
Competence <i>Role</i>	Act in a range of roles, under direction
Competence <i>Learning to learn</i>	Learn to learn in a disciplined manner in a well-structured and supervised environment
Competence <i>Insight</i>	Assume limited responsibility for consistency of self-understanding and behaviour



Appendix IV : Activities

Activities for Lesson 2. RUBBISH

Learning objectives
General
Understand the importance of reducing waste.
Specific
<ul style="list-style-type: none">• Learn to recycle.• Understand the importance of recycling.• Differentiate rubbish types and the materials there are made of.• Understand that different types of rubbish need to be treated in different ways.

School ACTIVITY 1 – Types of rubbish poster

Using rubbish from your home, your school and your garden

1. Make a poster showing different types of waste
2. Present this to the class
3. For each rubbish discuss:
 - What is it made of?
 - Would you throw this in the bin?
 - What bin? Black (non-recyclable) or Green or glass bin etc.
 - Where does this rubbish go when the rubbish truck takes it away?

School ACTIVITY 2 – A bin for organic rubbish

Make a compost bin

1. Use a recycled paint bucket or similar as your organic bin
2. Put in grass cuttings, chopped up paper waste, fruit peels or any other organic waste available in the school.



- At the end of the year, feed plants or soil with it

School ACTIVITY 3 – The Re-use fair

Organise a class fair with your classmates

- Take 1 or 2 things from home that you no longer use
- At the class fair, swap these with your classmates- change yours for others you like and you will use.

School ACTIVITY 4 – Making a mini landfill

- Dig 2 small holes in the school yard.
- Fill one with organic rubbish.
- Fill the other one with plastic bottles, crisps or chocolate wrapping, milk cartons or any other plastic, metal or glass rubbish in your poster
- Check them after two weeks and 2-3 months.
 - Will they rot or not? What happens to the rubbish that rots? Good or bad?
 - And the rubbish that doesn't rot? Where shall we put this rubbish so that it doesn't dirty our environment?
 - Make a table to include the type of rubbish, the material it is made of, and whether it rots or not.

Type of rubbish	Material	Rot or not
Crisps wrapping	Plastic	Not
Chocolate wrapping	Plastic	Not
Banana peel	Organic	Rot
.....		

School ACTIVITY 5 – Recycling an old t-shirt

Make an old t-shirt become a shopping bag

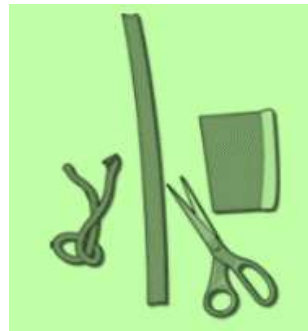
- Look for a T-shirt that nobody wants at home



2. Cut the neck and the sleeves
3. Cut three strips of cloth from the sleeves
4. On the bottom of the shirt, cut small slits (just big enough to slip in a safety pin)
5. Stick the safety pin to the end of one of the strips and close the pin.
6. Insert the pin and strip, into the slits, up and down as you move onto the next slit.
7. Insert all the strings.
8. Remove the safety pins, pull the strings tight and tie a knot.



Step 2. Cut the neck and the sleeves



Step 3. Cut three strips of cloth from the sleeves



Steps 4-8- Insert the pin and strip, into the slits, up and down as you move onto the next slit. Insert all the strings. Remove the safety pins, pull the strings tight and tie a knot.



Community ACTIVITY 1.- Site visit

Visit your local recycling facility

- Check what goes in each skip
- Take photos for your poster - classroom activity 1

Community ACTIVITY 2 – Site visit

Visit your local incinerator

- Take photos for your poster - classroom activity 1

Home ACTIVITY 1 – Donating to charity

Make a list of things that you could donate to charity instead of throwing them out.

Home ACTIVITY 2 – The bins at home

Where are the bins in your home?

1. Look at the shape/colour and where they are.
2. Practise putting the waste in the right bin.
3. Take photos to use in your poster - classroom activity 1

School ACTIVITY 6- Things I do to help keep my environment clean

Make a presentation to the class telling what you have done or you will do to help keep the environment clean. Examples:

- I separate the rubbish at home- I put my rubbish in the right bin.
- I gave my old CDs to the charity shop.
- I swop books with XXX.
- I recycled an old t-shirt.
- I carry my own bag to the shops
- I don't waste toilet paper and tissue paper. I use less writing paper



Activities for Lesson 4 CONSTRUCTION AND THE ENVIRONMENT

Learning objectives		
General		
<ul style="list-style-type: none"> • The student communicates using a variety of means. • The student gathers and presents information. • She/he gathers understanding, knowledge and skills in the construction field. • Uses digital technology for searching, gathering and presenting information. • Takes responsibility for his/her own safety and that of others. • He/she explores social events to increase own confidence and develop a sense of responsibility and belonging. 		
Specific		
Topic 4.1. Construction and materials.	Topic 4.2. aterials. How are made - Their impact to the environment	Topic 4.3. Using rubbish to make materials that are good for the environment
<ul style="list-style-type: none"> • Distinguish building material types and their function. • Learn main parts of a building and their function. • Create a simple timeline with the stages of building construction. • Classify buildings by age. • Investigate different types of constructions: their materials and their function. • Learn to use words and terms relating to construction. • Identify different jobs that people do in construction 	<ul style="list-style-type: none"> • Learn about material properties, sources and manufacturing. • Ascertain that material production creates environmental problems. • Learn what is global warming and climate change. • The student values what it means to be an active citizen in society, with rights and responsibilities. • Interpret non-verbal signs to keep safe. • Identify risks at home and in the community (recognise places 	<ul style="list-style-type: none"> • Learn what types waste can be used in construction. • Discover what materials can be made with waste. • Create an artefact using recycled waste or organic material and present it to their peers. • Discuss the pros and cons of different types of materials



	where personal safety is important).	
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Home ACTIVITY 1. Building materials at home and our neighbourhood

- What building materials can you see in your home?
 - Outside?
 - Inside?
- Do you have a garage or a cellar? What materials can you see there
- Take photos of them and bring them to school to present to your class.

Home ACTIVITY 2. Pipes

- Take a photo of some pipes in your home e.g. under the sink pipes.
- Explain to the class where they are and what they are for.

Home ACTIVITY 3. Electricity

- Take a photo of the electricity switch panel in your home- what is it for?
- Take a photo of some electricity plugs/wires in your home.
- Explain to the class what they are for.
- What do they power? Are they dangerous?

Community ACTIVITY 1. A DIY store or a builder's provider

Go to a DIY store or a builder's provider. Take photos to discuss them in class.

1. In the shop:
 - Look at plumbing pipes- what for are they? E.g. To get running water in homes and other buildings.
 - Look at sinks and toilets and ask the students where the pipes go.
 - Look at plugs and electric wires.
2. Ask the students questions about them.
 - What for are they?



- Where are they in the building?
 - What can they power?
3. Look at bricks, tiles, timber, sand and gravel
 - Think about what can we make using them e.g. walls? Beams? Roofs? Gardens?
 4. At school, discuss the materials using the photos.

School ACTIVITY 1 - Building a house – or a school- The role of the different people in the community

With the help of photographs, discuss the role of different people involved in building.

- Architect
- Builder
- Electrician
- Carpenter
- Plumber
- People that work in cement factories
- People that work in the brick factories
- Town planners- City hall-

School ACTIVITY 2 – Materials for buildings

1. Make a list of the materials that you would need to build a house.
2. Present it to the class.
 - Use photos or drawings.
3. Explain what materials did you choose and what for they are.

Home ACTIVITY 1 – Planning for new building in your community

1. Select among one of the following options.
 - Look in the web for any new developments that will be built in your area or in your country;
or
 - Send an email to the city planners asking for images of the next planned building/development; or
 - Find information about any new building in the web.



2. Make a presentation to show in class:
 - what are the buildings for?
 - When are they finished?
 - What materials are they made of?
 - Where are they?

Community ACTIVITY 2 – Stone quarry

Visit a stone quarry .

It can be a stone quarry, where the students can see blocks and stone masons or machines working the stone; or it can be a sand pit, where the students can see sand dug and bagged.

1. Look in the map (e.g. in the computer)
 - Where is the quarry?
 - How far is it from your school/ home?
2. Take photos of what you see – e.g. machines, safety signs, quarry pit, etc... - to make a poster or a presentation later.
3. Take some stone /sand to the school.
4. Are there any signs you need to look at for safety?
 - Do you need to wear a helmet or visibility jacket?
5. Make a poster or a presentation showing the material (colour), location map, explain what you saw in the quarry (e.g. machines, what do they do etc...)
 - What is the stone /sand used for?
 - Discuss the stone properties (colour, strong/weak, light/heavy)
 - Are there safety signs? What for?

Community ACTIVITY 3 – Pottery

1. Visit a pottery maker workshop or yard. The students can see the clay and the kneading and firing in kilns.
2. Make questions to the students
 - What objects do the potters make?



- What for are they used?
 - Are they sold?
 - Is there a shop at the potter's?
3. They can try themselves to mould the clay if possible.

Community ACTIVITY 4 – Brickmaking factory

Visit a brickmaking factory

1. Take 2-3 kg of clay to school with you.
2. In the school, look at the clay, is it heavy? What colour?
3. In the factory: look at the steps that take for the clay or earth to become a hard brick.
 - Kneading
 - Shaping- do they use wires to cut the clay into bricks or do they use moulds?
 - Firing in kilns- talk about the temperature, what does firing do?
 - Look at the bricks and compare them with the clay.
4. Discuss the properties of the brick (colour, strong/weak, light/heavy)

School ACTIVITY 3 – Brick making presentation

With photos taken at the brick factory, or photos taken from the internet.

1. Present to the class how bricks are made.

Home ACTIVITY 3 - A building that you know.

Visit a building of your choice.

1. Take photos of the building and the materials in the building.
2. Make a presentation to the class:
 - What building is it? (e.g cinema, shop, hospital...)
 - Where is it? Show in a map
 - Do you go there? What for?
3. Show photos of one or more materials in the building.
 - Tell where they are -what for?
(E.g. Bricks for wall? Concrete for wall? Beams? Metal? Render? beams, walls, floor??...)



Home ACTIVITY 4 – A building site.

Visit a building site.

1. Take photographs and made a poster or presentation with them.
2. Look at the signs. Are there any signs for safety?
 - Do you have to wear a hard helmet?
3. Are there diggers? What for?
4. Look at the materials (bricks, mortars, concrete) and where they are (foundation, floors, walls, roof...)
 - What are the walls made of?
 - What is the building for?
 - Are there any beams? Are they metal or concrete beams?

School ACTIVITY 4– Making bricks: fired and unfired

Take the clay from the factory visit (or any other clay from a health shop or a craft shop).

1. Kneading- Add a little water and mix to reach a play-dough consistency.
2. Moulding– make small brick shapes by hand or with a mould. You can use any recycled plastic container as a mould, if the clay sticks to the mould, you can sprinkle it with sand or soil.
3. Dry indoor for 3 (or more) days until it is dry enough to remove it from the mould.
4. Remove from the mould.
5. Put half of the brick shapes in the oven and bake them at 300 degrees (or whatever temperature your oven can take).
6. Leave the other half of the bricks unfired, just dry them indoors or outdoors if the weather is good.
7. Discuss in class:
 - Compare the bricks fired bricks with the ones that were not fired.
 - Talk about the bricks and the environment.
 - Talk about their properties, colour, strength, hardness, heaviness/lightness etc..
 - Compare the bricks with the original clay.



School ACTIVITY 5 – Making mortar and building masonry walls

1. Show a clip of a mason making a brick wall
2. Ask the students questions: who is it, what does he do in the building, what is he doing?
 - Ask the names of the materials and make comments.
3. Buying the materials
 - Go to your local hardware or builder supplier's store.
 - Buy some bricks, cement and sand. You can also buy a trowel
 - Keep the receipt.
 - In class, look at how much each item is. How much money did you tendered? How much change did you get back?
4. Making the mortar.
 - 1st make the mortar
 - Look at the cement bag, are there any safety signs on it?
 - Put on gloves
 - Take some cement powder in a bowl, add the sand.
 - Mix it with a little water.
5. Making the brick wall
 - Watch the videoclip of the mason building the wall again.
 - Take some mortar with the trowel and apply to the brick like the mason in the video.
 - Spread the mortar on the brick with the trowel.
 - Put the mortared brick on the wall.

School ACTIVITY 6 – Global warming protests

1. Look up with your teacher in the internet information on protests about global warming.
2. Talk about why are they happening and what they are for.
3. Are there any dates called for to make protests all over the world? Can you take part?
4. Discuss in class:
 - What do you think may happen if the weather gets too hot.
 - Look up in the internet with your teacher global warming and climate change sites



School ACTIVITY 7– Make concrete with plastic rubbish

1. You need cement, plastic and water, moulds and a trowel.
2. For moulds:
 - you can use recycled ice cream containers or any recycled plastic container.
 - To make small concrete blocks, use ice cube moulds.
3. To use plastic instead of sand:
 - Cut plastic bottles into small pieces; or
 - Grind them with an old mixer or a blender (use small amounts); or
 - get plastic chips from a recycling plastic plant
4. For mixing the concrete:
 - Put on gloves
 - Take some cement powder in a bowl.
 - Add the plastic.
 - Mix it with a little water.
5. When the paste looks smooth.
 - Poor the mix into the moulds.
 - Leave it set for a day or two.
6. Take it out of the mould and you have your plastic concrete blocks for building

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