

PUZZLING UP GEOMORPHOLOGY

3ºESO – Biology&Geology - 3rd. Term

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IN-19 Assesment and ITC

PFLE2018 – Comunidad de Madrid

1. LESSON PLAN AND SUCCESS CRITERIA

LEARNING OBJECTIVES:	Bloom's taxonomy	SUCCESS CRITERIA:	
1. To compile and summarize the 3 ^o ESO geomorphology vocabulary.	LOTS	Remember	Learners recognize the six main types of geomorphological reliefs.
2. To differentiate landform types and its parts.		Understand	Learners match correctly relieve landforms with their the definitions.
3. To identify real relief shapes with the geological processes that create them.		Apply	Learners can assign pictures of real geomorphological sites with their correct landform.
4. To be able to assess onself and others knowledge.	HOTS	Analyze	Learners can compare the time invested in solving the puzzle activity before Vs after the geomorphology unit, individually Vs teamwork.
5. To implement critical thinking skills in the classroom.		Evaluate	Learners can grade their own learning improvement, and also their partners' and the whole class.
6. To involve students in a colaborative learning process.			Learners obtain better results (less mistakes in less time) working in teams than working alone.
7. To promote students creativity and hands-on active attitude.		Create	Learners prepare their own next unit puzzle version (<i>earthquakes and vulcanism</i>), using the explained <i>Tarsia</i> APP. Learners share them with the rest of the class.



2. LESSON ORGANIZATION

GROUPING	LEARNERS	TEACHER/AFL TOOLS	MATERIALS/APP
Big Group	Listen to the teacher instructions.	Gives instructions and anticipates the activity steps, but not the expected results.	Short Youtube video about collaborative learning benefits.
Individual	Solve the 8p. puzzle. (2min max.) Record time invested	Assigns the puzzle pieces according to the students skills.	Geomorphology simple puzzle pieces (8pcs).
Pairs	Compare their puzzles. Try solving the 8p. puzzle from scratch. (2min max.) Record time invested	Forms pairs of similarly skilled learners.	Progress table Pencil
Fours	Try solving the puzzle from scratch. (5min max.) Record time invested	Forms groups of four similarly skilled learners. Assigns the puzzle pieces according to the students skills	Geomorphology simple puzzle pieces (16pcs).
Six	Compare their puzzles. Try solving the puzzle from scratch. (5min max.) Record time invested	Forms groups of six similarly skilled students. Assigns the puzzle pieces according to the students skills.	Geomorphology simple puzzle pieces (16pcs).
Six	Calculate improvements (%) of time invested.	Explain learners how to calculate improvement percentages, comparing time invested in fulfilling the activity alone, in pairs, fours and groups of six.	Progress table Calculator Pencil
Individual or pairs	At home, design puzzles for Earthquakes or Vulcanism, our next unit contents.	Grade the homework puzzles.	Textbook Computer Tarsia

3. SELF & PEER ASSESSMENT SHEET

**PRIOR KNOWLEDGE ASSESSMENT
(BEFORE THE UNIT)**

	Time invested			Improvement Assessment		
	Individual	Pairs	Improvement (%)	0-30%	30-65%	65-100%
8 pieces Puzzle						

	Four people group	Six people group	Improvement (%)	0-30%	30-65%	65-100%
	16 pieces Puzzle					

UNIT DEVELOPMENT

**FINAL SUMMING UP ACTIVITY
(AT THE END OF THE UNIT)**

	Time invested			Improvement Assessment		
	Pairs BEFORE	Pairs AFTER	Improvement (%)	0-30%	30-65%	65-100%
8 pieces Puzzle						

	Fours BEFORE	Fours AFTER				
	16 pieces Puzzle					

TARSIA TOOL



Hermitech
Laboratory

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Information on Formulator Tarsia

License: Free

Requirements: Windows 2000/XP/2003 Server/Vista/Windows 7/Windows 8

Latest version: 3.9 (available for download) 


With this software you will easily be able to create, print out, save and exchange customised jigsaws, domino activities and a variety of rectangular card sort activities. The activities created using this software can be presented in printable form, ready to cut out.

Formulator Tarsia known earlier as Formulator Jigsaw is an editor designed for Teachers of Mathematics creating the activities in a form of jigsaws or dominos etc for later use in a class. It includes the powerful equation editor for building the math-expressions for the activities. An advanced feature of text placement along the side of the shape makes this tool irreplaceable software for fast activity creation. Formulator Tarsia became a powerful tool for learning activities since it supports the activity templates. It enables easy support of teachers and gives them new perspectives to development of their teaching activity.

Formulator Tarsia installation package contains samples kindly offered by:



Bryan Dye, having his resource MathsNet at <http://www.mathsnet.net>

 Craig Barton having his resource at <http://www.mrbartonmaths.com/jigsaw.htm>

Hermitech Laboratory highly appreciates these contributions.

Creating learning activities with Formulator Tarsia

Formulator Tarsia contains the following interface elements:

- (1) System menu;
- (2) 'Formulator Expression' toolbar (appears only on the 'Input' view of activities);
- (3) 'Standard' toolbar;
- (4) Bottom navigation bar;
- (5) Right hand navigation bar (appears in the input view and in other views when there are several options);

<http://www.mmlsoft.com/index.php/products/tarsia>

Formulator Tarsia



Formulator Tarsia Installation Package, v. 3.9.0.10123



Formulator Tarsia zipped application, v. 3.9.0.10123



Free Software
OS: MS Windows

License: free for non-commercial purposes (please see **Tarsia License Agreement** for more details)



Formulator Tarsia Installation Package, v. 3.8.0994.8113



Free Software
OS: MS Windows



Formulator Tarsia Sample Puzzles by Bryan Dye
(<http://www.mathsnet.net>)



Formulator Tarsia Sample Puzzles by Craig Barton
(<http://www.mrbartonmaths.com>)



Formulator MathML IE Performer



Formulator MathML IE Performer Installation Package,
v.3.9.1483.9051



Free Software
OS: MS Windows

<http://www.mmlsoft.com/index.php/downloads>

How to use TARSIA?

Check out this couple of videos!!


[TARSIA EXAMPLE](#)

[OUR TARSIA GEOMORPHOLOGY](#)

3. SELF & PEER ASSESSMENT SHEET

EXAMPLE


PRIOR KNOWLEDGE ASSESSMENT (BEFORE THE UNIT)

	Time invested			Improvement Assessment		
	Individual	Pairs	Improvement (%)	0-35%	35-65%	65-100%
8 pieces Puzzle	120''	40''	33%			

	Four people group	Six people group	Improvement (%)	0-30%	30-65%	65-100%
	16 pieces Puzzle	245''	228''	93%		

UNIT DEVELOPMENT

FINAL SUMMING UP ACTIVITY (AT THE END OF THE UNIT)

	Time invested			Improvement Assessment		
	Pairs BEFORE	Pairs AFTER	Improvement (%)	0-30%	30-65%	65-100%
8 pieces Puzzle	40''	20''	50%			

	Fours BEFORE	Fours AFTER	Improvement (%)	0-30%	30-65%	65-100%
	16 pieces Puzzle	245''	115''	47%		