Gamify Your Classroom!

A guidebook tool for an alternative pedagogical approach to class-based teaching

CROSS CURRICULAR IDEAS FOR USING GAME-BASED LEARNING TO REACH OUT TO STUDENTS AT LOWER COMPETENCE LEVELS

This Erasmus+ project has been funded under the Key Action Cooperation for Innovation and the exchange of good practices.
GBL4ESL

GAME-BASED LEARNING TO ALLEVIATE EARLY SCHOOL LEAVING

CROSS CURRICULAR IDEAS FOR USING GAME-BASED LEARNING TO REACH OUT TO STUDENTS AT LOWER COMPETENCE LEVELS

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EDITORS
GBL4ESL – Game-Based Learning to Alleviate Early School Leaving

Cross curricular ideas for using Game-Based Learning to reach out to students at lower competence levels

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ISBN:

Project Website: www.mita.gov.mt/gbl

This Erasmus+ project has been funded under the Key Action 2 Cooperation for Innovation and the exchange of good practices.
Project Number: 2015-1-MT01-KA201-003717
This book reflects the views only of the authors, and the Commission cannot be held responsible for any use that may be made of the information contained herein.

GBL4ESL by Jose Molina Avella, Vanessa Camilleri, Natalie Denk, Alexiei Dingli, Sarah Farrugia, Maria McNamara, Alex Pfeiffer, Thomas Wernbacher
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Introduction

This guidebook is one of the intellectual outputs from the project GBL4ESL, Game-Based Learning to Alleviate Early School Leaving that has been funded under the Erasmus+ initiative. The scope of the guidebook is that of supporting school teachers in the use of alternative pedagogies with students at risk of early school leaving. Early school leaving (ESL) is often related to a low achievement in basic skills as well as disengagement with the school and the curriculum. The outcomes from the European Council meeting¹ in November 2015, concluded that the design and quality of education systems together with teaching methods and curricula that may adequately reflect the needs of students at risk of early school leaving may have a strong impact on the teachers and the learners and their resultant engagement with learning. The council furthermore recommends that policies addressing the challenge for early school leavers should take into consideration alternative pedagogical approaches and include different forms of assessment. These outcomes also reflect the 2013 report of the Thematic Working Group on Early School Leaving, where one of the key messages to help reduce early school leaving, is to provide an engaging curriculum that is relevant to their experiences.

This guidebook has been produced as part of the partnership between schools and academia, with expertise and experience in the area of game-based learning. This guidebook does not offer a step-by-step guide into the operation and functionalities of different games. Instead the guidebook will offer ideas, possibilities and opportunities for teachers to integrate different games in their class-based teaching.

What is in this guidebook?

This guidebook uses the European Qualifications Framework specifying the knowledge, skills and competences required for a level 1 equivalence. According to the report published by the Thematic Working Group (2013) on Reducing Early School Leaving, ESL is defined as those ‘young people who leave education and training with only lower secondary education or less, and who are no longer in education and training’.

Table 1 - Level Descriptors for Level 1 Learning Areas

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<th>LEVEL DESCRIPTORS</th>
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<tr>
<td>1</td>
<td>KNOWLEDGE</td>
<td>1. acquires basic general knowledge related to the immediate environment and expressed through a variety of simple tools and contexts as an entry point to lifelong learning; 2. knows and understands the steps needed to complete simple tasks and activities in familiar environments; 3. is aware and understands basic tasks and instructions; 4. understands basic textbooks.</td>
</tr>
<tr>
<td>1</td>
<td>SKILLS</td>
<td>1. has the ability to apply basic knowledge and carry out a limited range of simple tasks; 2. has basic repetitive communication skills to complete well defined routine tasks and identifies whether actions have been accomplished; 3. follows instructions and is aware of consequences of basic actions for self and others.</td>
</tr>
<tr>
<td></td>
<td>COMPETENCES</td>
<td>1. applies basic knowledge and skills to do simple repetitive and familiar tasks; 2. participates in and takes basic responsibility for the action of simple tasks; 3. carries out activities under guidance and within simple defined timeframes; 4. acquires and applies basic key competences at this level.</td>
</tr>
</tbody>
</table>

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One of the measures addressing ESL is that of providing an engaging and relevant curriculum. We have chosen Level 1 descriptors (Table 1) to ensure consistency across the various European countries but also to provide a stepping stone for those at risk of ESL to move on to higher education levels.

This guidebook focuses on the following thematic areas for Numeracy and Literacy and will map out the areas to the learning outcomes, proposing a game-based learning approach to classroom teaching. The thematic areas emerging from the learning outcomes for core competence areas being proposed in this guidebook, follow the suggested pathways of the Learning Outcomes Framework developed in Malta as a result of an EU funded project under the ESF initiative (Number 1.228 – Ministry for Education and Employment), for entry level Literacy and Numeracy:

**Numeracy:**
- Number & Applications
- Shape, Space & Measurement
- Algebra
- Data Handling

**Literacy:**
- Listening
- Speaking
- Reading
- Writing

<table>
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<tr>
<th>LEVEL</th>
<th>LEARNING OUTCOMES</th>
<th>LEVEL DESCRIPTORS</th>
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| 1.    | Knowledge and Understanding;  
       2. Applying Knowledge and Understanding;  
       3. Communication Skills;  
       4. Judgmental Skills;  
       5. Learning Skills;  
       6. Autonomy and Responsibility | 1. has basic knowledge and understanding of textbooks and simple tasks while relating to the immediate environment;  
2. follows instructions and completes repetitive simple tasks in familiar contexts and under a quality controlled system;  
3. communicates basic information in familiar repetitive contexts;  
4. assesses and ensures that assigned tasks have been completed effectively;  
5. acquires and applies key competences to defined actions;  
6. takes some responsibility for completing simple tasks and exercises limited autonomy. |
How to use this guidebook

This guidebook has not been designed to be read from cover to cover but it is meant to give ideas that teachers can adapt instantly to their class-based lessons. In this guidebook we will be offering ideas about how to plan activities for learners at risk of ESL, that include the use of a number of commercially and freely available games.

The rest of this guidebook has been divided into the 8 thematic areas as indicated above. Each thematic area will be expanded into sub-areas, which will be linked to different approaches to using games.

It is also important to note that not all of the games may be directly linked to a specific curricular area and played as learning tutorials. However GBL4ESL toolkit aims to integrate commercial off the shelf games into a new form of learning that address higher order learning skills rather than simple drill and practice.

1. Number & Applications
2. Shape, Space & Measurement
3. Algebra
4. Data Handling
5. Listening
6. Speaking
7. Reading
8. Writing
GBL4ESL Digital Toolkit
[www://www.toolkit-gbl.com]

This guidebook accompanies the online digital toolkit that has been developed to provide teachers with a catalogue of games, which they could use during their teaching. As a teacher you can choose to filter results according to your preferred language, thematic area, or learning outcomes (knowledge, skills, competence).

You can choose which game would suit your classroom best, and which would be better well matched to your learners’ needs. Most of all this project does not assert that games are the panacea to this challenge in education, however we do believe that if practiced in the right way, using different approaches can provide novel ways of engaging and motivating learners. Using games may be just one of the many approaches which teachers can make use of during the course of their teaching.
Symbols used in handbook

- Scope of Game
- Learning Outcomes
- What the Game is about
- How to Play
- Teaching Strategy
- Post Game debriefing
Reflection Activities for use with Students

This section gives some ideas about how to use activities involving games in the classroom:

1. Make a list of games which the students find fun playing. You can ask them to divide them in different game categories such as:
   a) Board games or card games
   b) Video games
   c) Online games
   d) Physical sport games

   Prompt the students to try and understand what makes a particular game fun? What other game categories can this fit in? What skills must the gamer possess to be good at this game? Does s/he need to know how to read or write well? Does the gamer need to be good with numbers or to solve challenging puzzles?

2. Engage the students in a discussion about what they learn from the games which they mention. What sort of problems or challenges do they need to solve for them to be good at the game they like playing?

3. Ask students to choose a game which they like playing. Ask them to suggest any modifications to the game that would make it more fun to play? What additional challenges would they put in if they were designing the game?
Game Activities

The next section of this guidebook will introduce you to sample lesson activities which you can do with your students in class. Some students might also be encouraged and supported to continue playing specific games outside the classroom.
Number and Applications

The games that are considered in this section include:

- **Mission 2110**
- **Funky Mummy**
- **Soccer Subtraction**
- **Ghost Blasters**
- **Totally Tut**
- **Monopoly**
- **Quizmo**
- **Circuit Match**
Mission 2110

Price: free
Platform: Online Access
Subject: Math
Level: 1
Tech Requirements: Internet

The scope of this game is to introduce Addition and Subtraction

Learning outcomes include student learning to count, read, write and order positive whole numbers.

Mission 2110 is a futuristic adventure game produced by BBC where players must use their skills at adding and subtracting to save the world. The game can be played at school or at home, provided there is Internet Access.

To Play Mission 2110 you can access it online via http://www.bbc.co.uk/bitesize/ks2/maths/number/addition_subtraction/play/popup.shtml

This game can be used as an introduction to a lesson providing revision addition and subtraction. Students can play in pairs to be able to traverse the game space and collect the bio rods, thus saving the world. Student pairs can compete against each other, in trying to solve the 4-digit addition and subtraction.
Following playing the game, engage the students in a discussion using these questions:

- Would you choose to play this game again?
- Is this game fun to play? Why? Why not?
- How would you categorise this game?
- How would you improve this game?

Would you say you improved some skills with this game?
Funky Mummy

Price: free
Platform: Online Access
Subject: Math
Level: 1
Tech Requirements: Internet

To practice quick recall of number facts, up to 9+9

The student will count, read, write and order positive whole numbers.

Funky Mummy is an online game that is designed to practice quick recall of number facts up to 9+9. If the player presses on the correct sarcophagus the mummy will come out and perform a dance. At the end of the game, the student will be able to write in his name in hieroglyphs.

Funky Mummy is accessible online via
http://ictgames.com/funkymum.html

This is a very short game that can be played in class to practice some quick number facts. The game can be timed, or else students can join in pairs to help each other add up numbers. Students can also be encouraged to play their own number games, by assigning new numbers to each other. Although the game is quite brief, students can practice at playing it frequently to try and improve their mental skills with small value numbers.
Following playing the game, engage the students in creating more number facts, such as the ones given as examples in Funky Mummy. Student groups can compete against each other in class.

The aim of this game is to practise quick recall of number facts, up to 9+9.

1. Press ‘next’ for a new calculation.
2. Count on from the biggest number.
3. Press on the correct sarcophagus.
4. If you’re correct the funky mummy will dance for you. If you’re wrong you’ll get another go but you won’t add to your score.
5. Press ‘clear’ if you make a mistake.
Soccer Subtraction

Price: *free*
Platform: *Online Access*
Subject: *Math*
Level: 1
Tech Requirements: *Internet*

To practice simple subtractions

The student will count, read, write and order positive whole numbers.

Soccer Subtraction is a freely accessible online game designed to practice subtractions. The players need to work out how many players are needed on the field, during penalty time and if they get the numbers correct, they will score the penalty. Numbers are from 1-9 and the subtractions come up at random.

Soccer Subtraction is accessible online via http://ictgames.com/soccer_subtraction.html

This game can be played to have students practice and master simple mental subtraction operations. It can be played in turns, as students attempt the answer to score the penalty goal. Suggested time play is between 5-10 mins depending on the number of students in class.
Following the game, the following discussion questions can be used to engage students in further discussion.

- We have seen subtraction in penalty examples. Where else in a football match, might you see subtraction examples?
- Mention other sport examples that you can have in other video games. Where would you have subtraction examples in these games?

Think about what you do every day after school. Where else would you have to do subtraction?
Ghost Blasters

Price: **free**  
Platform: *Online Access*  
Subject: *Math*  
Level: 1  
Tech Requirements: *Internet*

To identify multiples of positive numbers

The student will count, read, write and order positive whole numbers.

Ghost Blasters is a fast game where the students have to choose the multiple of positive numbers to reach a 100 points. The teacher sets out the multiple values e.g. multiples of 10, and the players will need to click on ghosts to make up to a score of 100. The game is also timed.

Ghost Blasters is accessible online via [http://www.oswego.org/ocsd-web/games/Ghostblasters1/gbcd.html](http://www.oswego.org/ocsd-web/games/Ghostblasters1/gbcd.html)

Different ability students can play this game by selecting different multiples. Students can compete on whoever reaches the score of 100 the fastest. This game can also be played using the Interactive Whiteboard. It is recommended that this game is not played for longer than 5-10 mins, as part of the identification of multiples of positive numbers according to the learning outcomes framework.
Following the game, the following discussion questions can be used to engage students in further discussion.

• How would you change the game to make it more fun if you could?
• What was special about the ghosts you were hitting?

Was there a pattern about the numbers on the ghosts you were hitting? What was it?
Totally Tut

Price: €32
Platform: Board Game
Subject: Math
Level: 1-2
Tech Requirements: N/A

To identify multiples of positive numbers

The student will understand the concepts associated with the four number operations (e.g. that multiplication is repeated addition).

Totally Tut is a board game which takes players trekking their way across the rows of an Egyptian pyramid by drawing addition, subtraction, multiplication and division cards.

Totally Tut is a Boardgame that can be purchased from: http://www.amazon.com/Learning-Resources-Totally-Math-Operations/dp/B00004TDKR

Totally Tut requires critical thinking while honing addition, subtraction, multiplication, and division skills. The object is to fill the pyramid with triangle pieces by creating accurate math problems. To begin, the player draws and places one "answer" number at the top of the pyramid. For example, if the answer number is 4, the player has to come up with various ways to get to the number 4 using the triangles in his/her hand (for example, 8 - 5 + 1) to fill the pyramid. The player who completes the first pyramid is the winner. There is a great deal of strategic thinking involved, because the player can steal or swap numbers from his/her opponents to help him/her win. Totally Tut is a skill-building game for two to four players.
Because the operations chosen by the player depend on the players’ ability, different ability students can play this game. It is estimated that this game can be played during an entire lesson in the classroom, and students can be paired up as one single player, to help each other with strategic thinking. It is also suggested that this lesson is combined with other lessons, that take into account ancient Egyptian history.

The game can also be combined with some lessons about ancient Egypt. Although this may not be in the students’ curricula, they might find the following links engaging and interesting and would wish to expand on their knowledge.


Monopoly
(Star Wars Ed)

| Price: €22 |
| Platform: Board Game |
| Subject: Math |
| Level: 1-2 |
| Tech Requirements: N/A |

To carry out basic mathematical operations

The student will understand the concepts associated with the four number operations (e.g. that multiplication is repeated addition).

Monopoly is a classic trading game, but in the Star Wars edition players can play on the Rebel or the Empire side. The mission is to conquer planets and build bases. When players land on planets owned by others, they pay the rent. When every planet is owned, the game is over.

Monopoly is a Board game that available from: http://www.hasbro.com/en-us/brands/monopoly

Monopoly involves strategic thinking, involving counting and other basic mathematical operations

Because the operations chosen by the player depend on the players’ ability, different ability students can play this game. It is estimated that this game can be played during an entire lesson in the classroom, and students can be paired up as one single player, to help each other with strategic thinking, planning and budgeting.
The game can be combined with reading and literacy classes including new vocabulary, discussion and further lessons about planets and the solar system.

Lesson Plan suggestions for the Solar System:
http://www.discoveryeducation.com/teachers/free-lesson-plans/classroom-planetarium.cfm

Lesson Plan suggestions for more awareness about space:
http://amazingspace.org

An interactive game can also be played in class to illustrate in further depth the solar system whilst increasing new vocabulary:
http://amazingspace.org/resources/explorations/trading/trading-inter-details.html
Quizmo
(Mult/Div)

Price: €28
Platform: Board Game
Subject: Math
Level: 1-2
Tech Requirements: N/A

To carry out basic mathematical operations

The student will understand the concepts associated with the four number operations (e.g. that multiplication is repeated addition).

Quizmo is an educational lotto game, featuring multiplication and division. Quizmo is a game that helps children understand and memorize the basic number facts in multiplication and division. It is played like Bingo. Cards are double sided, multiplication on one side, division on the other.

Quizmo is a Board game that available from: https://www.amazon.com/WorldClass-Learning-Mtrls-W-MB9310-Multiplication/dp/B000QEoZY6

Quizmo involves the development and strengthening of memory and computational skills for multiplication and/or division facts, whilst developing and promoting cooperative learning.

It is estimated that this game can be played during an entire lesson in the classroom. The game can be played in groups, or individuals as number of players can range from 2-40. It requires no reading. The leader reads problems aloud, and players compute the answer to find the solution on the playing cards.
It is suggested that following this game, the following questions are explored with the students:

- Do you play lotto and bingo at home?
- What dangers do you think can be associated with gaming?

Having played this game do you think it’s easy to win at lotteries?
Circuit Match

Price: Free
Platform: Interactive w/board
Subject: Math
Level: 1-2
Tech Requirements:

To carry out basic mathematical operations

The student will understand the concepts associated with the four number operations (e.g. that multiplication is repeated addition).

CircuitMatch is a game that is played online. Players can play using the Interactive Whiteboard in class. The game’s interface is similar to a circuit board and the players need to match the values on the board components to their value.

Circuitmatch is game freely available from:
http://teacherled.com/resources/circuitmatch/circuitload.html
CircuitMatch does not come with instructions for use. The game is timed at 30 seconds which means that the players need to be quite fast in their computation.

It is estimated that this game can be played as an icebreaker at the start of the lesson. One game lasts for 30 seconds. It is estimated that the game becomes easier and less frustrated after a number of practice sessions. Ideally it is played as a whole class exercise. It requires no reading.
Following the game you can engage the students, playing pairs against each other, whilst one pair comes up with an addition the other pair gives the value. This can also be reversed, with one group giving the value and one group working out possible addition methods. Other mathematical operations are also available.
Shape, Space and Measurement

The games that are considered in this section include:

- **Extrasolar**
- **Minecraft**
- **Tessellate**
- **Triangle**
- **Tank Attack**
- **Set**
Extra Solar

Price: Free
Platform: Online Access
Subject: Math
Level: 2
Tech Requirements: N/A

To recognize simple flat and solid shapes; to know the unit of measurement for length, area, weight and capacity, to understand the concept of an angle

The student will display a feel for the units of measurement as applied in real life contexts;

Extrasolar is a game that is played online and is a simulated exploration of a nearby planet that plays out in real time. After directions are uploaded to the space rover there will be a wait time for those directions to be carried out and the resulting images to be transmitted back across the depths of space to a web-based terminal. As a participant, the students will be exploring dramatic alien landscapes, investigating scientific mysteries, and interacting with real characters as they work to uncover the true motives of the eXoplanetary Research Institute (XRI), a private space agency with a questionable past.

Extrasolar is freely available from: https://extrasolar.com
Anyone with a browser and a connection to the Internet can play. No special hardware is required to experience Extrasolar. Mobile and tablet devices can be used too.
The way that Math skills can be combined in this game is through tracing the path (including angles, and lines of movement) where the space rover would move in order to explore the alien planet. The players are enrolled on a mission to explore the planet whilst taking photos of possibly alien species (identifying their shape), all done in a game like environment, where the players are trying to uncover the truth behind the private space agency’s motives.

Following the game you can engage the students in a discussion about the game development allowing time for some creative writing. Students can be asked what species they have uncovered, and speak about their characteristics, including their shape and their size. Students may even be asked to describe where they have explored and what they think is the scope of their mission.

Some discussion questions which can be used include:

- What alien species have you discovered?
- Can you describe them?
- In what ways do they differ or are similar from the species your peers have discovered?
- Where have you taken your rover?
- What instructions did you give your rover?
- Which direction did the rover move and how far has it gone?
- If you had to think about the mission which your rover is on, how would you describe it?

Why do the space agency need your help? What do you think are they planning?
MinecraftEdu

Price: free for schools and educators
Platform: Windows / Mac
Subject: Math
Level: 2
Tech Requirements: Installation

To recognize simple flat and solid shapes; to practice ratio and proportion

The student will be able to build models to scale practicing about units of measurement and proportion;

Minecraft is a game where you dig (mine) and build (craft) different kinds of 3D blocks within a large world of varying terrains and habitats to explore. In this world the sun rises and sets as you go about your work, gathering materials and making tools. There is rain and the occasional lightning storm, and animals that you can tame, farm or use for food. Depending on which mode you’re playing in, you might also need to fight for your survival against hunger, danger and bad guys.

Minecraft is what’s called a sandbox game, where each player can create a game by manipulating the world within it (like kids playing in the sand). There are no specific steps or goals, so everyone playing the game is having a different experience.

MinecraftEdu is a school-ready remix of Minecraft, played by over 60 million people worldwide. Created by teachers for classroom use and officially supported by Mojang, the company behind Minecraft, MinecraftEdu contains a set of powerful yet simple tools to fine-tune the Minecraft experience for learning. Teachers in over 40 countries use MinecraftEdu in every subject area from STEM to Language, to History, to Art. Many lessons and activities are made available for free, and there is a vibrant, active teacher community exploring uses of the game.
To purchase and install MinecraftEdu is relatively simple. Log on to the site: [http://education.minecraft.net](http://education.minecraft.net) and click on Get Started. Submit a valid email address (use the official organization email). Installation may require some technical assistance. Video tutorials are however accessible online via this link: [http://services.minecraftedu.com/wiki/Getting_started#How_to_Install](http://services.minecraftedu.com/wiki/Getting_started#How_to_Install)

Additionally before using MinecraftEdu in the classroom it is best to be acquainted with how it works. A number of video tutorials are available online as well as various lesson plan activities which you can do in class. Some practical tips and suggestions are as follows:

- **Know your tools:** Make sure you’re familiar enough with the game and the world you’re about to use. Play through the world yourself from the point of view of the student.
- **What are your goals?:** Just playing Minecraft can teach a lot. However, when using it in a classroom, chances are you probably have a goal; you may want to introduce a topic with the game, or you might want to practice a skill or use the game to demonstrate learning. Lay out your goals before you start.
- **Giving instructions:** Despite the whole range of available class management tools, it is probably a good idea to give general instructions before you let the students into the game. While in the game, you can use the in-game assignments to give instructions without disturbing gameplay. By breaking the assignments into parts, you can easily keep track of individual students’ progress.
- **Grouping:** Are the students working in groups, pairs, or alone? Are they all working on their own computers or sharing? Grouping can be a powerful tool; it can foster collaboration and communication.
- **Tap the resources:** Your students might be experts of Minecraft; don't let this intimidate you. On the contrary, give them the possibility to use their knowledge and teach others, yourself included. Giving responsibility to students to engage them.
- **Use the Tutorial:** If you and some (even if not all) of your students are unfamiliar with Minecraft, it's a good idea to start with the tutorial world. Created by Joel Levin, the MinecraftTeacher, it introduces the central concepts of the game for both students and teachers. The lesson plan accessible via this link: [http://educade.org/lesson_plans/getting-started-with-minecraftedu](http://educade.org/lesson_plans/getting-started-with-minecraftedu) is intended for the tutorial world with step-by-step instructions.
- **Take a look at how other educators use the game:** In the section: [http://services.minecraftedu.com/wiki/Teaching_with_MinecraftEdu #Lesson_Examples](http://services.minecraftedu.com/wiki/Teaching_with_MinecraftEdu #Lesson_Examples) you can find real-life examples for lessons.
The way that Math skills can be combined in this game is through a cross-curricular approach, that integrates numeracy and literacy. For measurement and shapes, the use of MinecraftEdu can assist in measuring volume by counting unit cubes, using cubic cm, or any improvised unit, relating volume to the operations of multiplication and addition as well as solving real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

MinecraftEdu can help you engage the students in a variety of activities including storytelling and creative presentations. A number of worksheets and activities have also been designed by the MineCraftEdu community. One such post minecraft reflection handout can be accessed and downloaded freely from here: [https://docs.google.com/file/d/oByTZFAxBmqShRHRDTWl2TXVNdIU/edit](https://docs.google.com/file/d/oByTZFAxBmqShRHRDTWl2TXVNdIU/edit) This worksheet will support students in identifying the controls they used during the session, as well as reflect about what they did and why they did it.

Depending on the MinecraftEdu mode (creative or survival), a discussion can arise where students identify the problems they encountered, the ways they used to solve them, as well as possibly logging on to forum discussion boards as well as follow video tutorials to help the students overcome the challenges and move to the next level in the Minecraft sandbox.

It is also recommended that as a teacher you join the Minecraft Educators community linking to a variety of resources and activities which you can do in your classroom, all related to literacy, numeracy and other curricular areas. Communities can be accessed from: [http://services.minecrafteredu.com/wiki/Teaching_with_MinecraftEdu](http://services.minecrafteredu.com/wiki/Teaching_with_MinecraftEdu)
TankAttack

Price: Free
Platform: Online Access
Subject: Math
Level: 2
Tech Requirements: N/A

To work out angles in triangles

The student will understand the concept of an angle - Know that a whole turn is 360°, the angle on a straight line is 180°, a right angle is 90° and that half a right angle is 45° and identify the angle between the main eight compass directions.

TankAttack is a game that is played online. It is a game that can be used to develop the learners’ ability to calculate the angles on the inside and outside of the corners of a triangle.

TankAttack is freely available from:
http://www.what2learn.com/home/examgames/maths/angles1/
Anyone with a browser and a connection to the Internet can play.
Mobile and tablet devices can be used too.

This game can be used to help test your students’ abilities in calculating angles. It is a game that shouldn’t take an entire lesson to play, but it is also a game where you should make use of group collaboration so that your learners can reach the right answer.
Some discussion questions which can be used after the game include:

- Draw the shape of a triangle?
- Where can we find triangles around us?
- Can you check around the school, home, streets, town, etc. and list how many triangle shapes you see and find?
- What is so special about the angles in a triangle?

What other shapes can you identify in the class or in the school?
Tessellate

Price: Free
Platform: Online Access
Subject: Math
Level: 1-2
Tech Requirements: N/A

To identify and examine symmetry in geometric figures.

The student will recognise simple flat and solid shapes.

TankAttack is a game that is played online. The game’s scope is that of generating a polygon that will repeat without overlapping across a plane. Starting from a rectangle, triangle or hexagon, the learner bends the lines of the polygon, creating a new polygon. The learner can choose several different colors to enhance the pattern, and can observe the different effects that colors have on tessellations.

Tessellate is game freely available from:
http://shodor.org/interactivate/activities/Tessellate/
Anyone with a browser and a connection to the Internet can play.
This activity allows the learner to deform a triangle, rectangle or hexagon to form a polygon that tiles the plane. This activity would work well in groups of two to four for about twenty-five minutes if you use the debriefing questions and activities and fifteen minutes otherwise. Through this game as a teacher, you will be able to address the following: generation of and pattern analysis, experimentation with transformations, as well as the comprehension of congruence in terms of rigid motions.

There are a number of discussion and exploration activities for this game that can be used during the lesson. These are freely accessible from this link:

http://shodor.org/interactivate/media/worksheets/115.pdf

One example given is this:

Have the students explore which regular polygons tessellate and why. Start them by examining tessellations of regular polygons including number of sides and interior angle measurements by using a data table. Encourage students to determine a pattern among the polygons that they tessellate. Ask the students to predict which regular polygons will and will not tessellate and why. Follow-up by having the students write a concise definition for a regular polygon tessellation. Have them expand this definition to describe a tessellation made from non-regular polygons.

Additional discussion activities can be explored via this link:

http://shodor.org/interactivate/activities/Tessellate/
To identify and examine symmetry in geometric figures

The student will recognise simple flat and solid shapes.

This game can be played without previous knowledge, your students don’t have to be able to read or do math to play. Set is a game of Visual Perception based on three cards where each feature, when looked at individually, is either all the same OR all different. Each card contains four features: color (red, purple or green), shape (oval, squiggle or diamond), number (one, two or three) and shading (solid, striped or outlined).

Set can be ordered online via [https://www.amazon.co.uk/SET-The-Visual-Perception-Game/dp/B00000IV34/ref=sr_1_2?ie=UTF8&qid=1468486220&sr=8-2&keywords=set+board+game](https://www.amazon.co.uk/SET-The-Visual-Perception-Game/dp/B00000IV34/ref=sr_1_2?ie=UTF8&qid=1468486220&sr=8-2&keywords=set+board+game). SET is a speed card game. Each card contains one of three symbols (squiggles, diamonds, ovals) in varying numbers (up to three), colors (purple, green, red), and degrees of shading. A dealer arranges 12 cards, face up, and the players--without taking turns--hastily scrutinize the images for logical "sets" of three cards linked by combinations of sameness or difference. Examples include a trio of paired ovals with increasing levels of shading between cards, or disparate symbols in different colors which increase in number on each card (card one has a green squiggle, card two a pair of purple ovals, card three a trio of diamonds).

The first to see a SET, calls out ‘SET’ and picks up the three cards that make the SET. There are no turns and no luck. Race to find as many SETs as fast as you can. Be the one who has the most SETs when the cards are gone, and you win! SET is a game of fast-thinking fun!
This game can be played in multiplayer mode for around 20mins during a lesson, building cognitive, logical and spatial reasoning skills as well as visual perception skills while playing a game! Because it has a rule of logic (three cards that are all the same or all different in each individual feature), and because players must apply this rule to the spatial array of patterns all at once, they must use both left brain and right brain thought processes.

Some discussion questions that can follow the game activity include:

• What pairs made up your sets?
• What did you like about this game?
• What did you dislike most about this game?

What mattered most in this game for someone to win?

Answers:
Algebra

The games that are considered in this section include:

**Manga High**

**Maths on Planet Zoq**

**Noodle**
To explain how to isolate a variable in an algebraic equation and be able to add and subtract negative numbers.

The student will understand the purpose and meaning of a formula in words.

Manga High is an online platform designed for teachers and learners to acquire Math Skills through games and game-based learning. A teacher would have the option of registering and adding students to a class. Every time the students log in, and play a game they acquire points which may be displayed on leaderboards. The platform has a demo class which you can explore to understand more how to exploit it. One of the games in Manga High is called Jabara. As a teacher you can choose to play this game yourself, with the class or else, have your students log in to play it. Jabara introduces the player to a journey to 9th century Baghdad, to learn algebra concepts and skills. The player can solve equations by isolating the variable in the minimum number of moves. The game is also smartphone and iPad-friendly.

Manga High can be accessed online via: https://www.mangahigh.com/en/

Once you register your profile and your school on Manga High you will be taken to the home screen where you can choose to view the tutorial with the demo class presented by Manga High, or add students to your own classroom in Manga High.

To play Jabara, click on GO, then click Play Now, and follow the on-screen narrative until you reach the play screen. Click on Play or turn the roulette to find the level which you would like your learners to play.
Break students up into pairs, or have them work individually (working in pairs encourages discussion while learning, but is not always possible or desirable). Let them play through the first Challenge ‘Simplifying Constants’ (levels 1-20). Students do not need to have any previous exposure to algebra or algebraic equations.

Review the basic concepts of unknown value, constant, and equation to make sure students understand and answer any questions that come up. Ask students questions about what they did in the game to encourage a discussion. Ask things like:

- How does simplifying an equation help us figure out x?
- Why do we have x by itself on one side of the equation?
- Why is adding a negative the same as subtracting?
Math on Planet Zog

Price: Free
Platform: Online Access
Subject: Math
Level: 1-2
Tech Requirements: N/A

To explore the meaning of mathematical equality, proportional reasoning, and the representation of variables through visual puzzles.

The student will understand the purpose and meaning of a formula in words.

Math on Planet Zog consists of a set of puzzles representing one or more algebra problems visually. Learners can solve the shuttle mission problems using the scaling up and down option or by combining teams and subtracting unknowns.

Math on Planet Zog can be accessed online via: http://www.mathplayground.com/shuttle_mission_math/shuttle_mission_math_game.html

There is no need for registration, nor any technical requirement when playing the game. The narrative focuses around a series of creatures, called Zogs, that are needed for the space mission shuttle to take off. In order for the Zogs to be added to the space mission the player needs to solve problems related to mathematical equality (through the balance scale), proportional reasoning (through the scaling tool) and the representation of variables (through the Zog values).
It is best to play this game as a whole class exercise, using collaboration and cooperation to solve these algebraic puzzles. Teams of students can work out the individual challenges or tasks, and the team coming up with the right answer first can solve the puzzle. Teacher’s help might be needed for students at level 1.

In order to prompt discussion for this game you can ask questions such as:

- Why is it important to reach a balance in an equation?
- How do you use the scaling to find the value of one?
- Why is finding the value of one important?
- How do you use grouping or teams to find the value of the zog?
Noodle

Price: Free
Platform: Online Access
Subject: Math
Level: 1-2
Tech Requirements: N/A

To Express a given problem as an equation in which a letter variable is used to represent an unknown number and to Demonstrate and explain the meaning of preservation of equality, concretely and pictorially.

The student will understand the purpose and meaning of a formula in words.

Noodle is an interactive mathematics resource that allows the learner to explore and interpret word problems by evaluating expressions and solving equations in a fun and engaging way.

Noodle can be accessed online via:
http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.PATT&ID2=AB.MATH.JR.PATT.ALG&lesson=html/object_interactives/algebra/use_it.html

To play, the player moves around the noodle board by answering questions on expressions and equations. The player will choose the best roll of the dice from his own or the computer’s throw when answering questions correctly on the first attempt. The game is won, when both pawns are moved to the middle of the brain area on the noodle board.

This is a fun activity that combines a number of skills, and that can be played as a whole class exercise, using collaboration and cooperation to solve these algebraic puzzles. The game shouldn’t last for more than 20/25 minutes. The site also offers a number of print activities that can follow up from the game.
The site offers game print activities that are directly accessed from this link: http://www.learnalberta.ca/content/mejhm/html/object_interactives/algebra/flashHelp/pdf/algebraLearningStrategies.pdf

The print activities will also help the students understand and relate to the following amongst others:

- Understand how to move on the grid to solve the problem.
- Understand the written form of the problem and the solution.
- Select expression and read the problem.
- Understand that “increased by a factor of” means multiplied by.
- Understand that “increased by” means plus.
- Understand how to create the expression defined by the problem.
- Understand that the problem is solved when the given amount is substituted into the defined expression.
- Understand how to use the grid to solve the problem.
- Understand the written form of the expression, the substitution and the result. Select equation and read the problem.
- Understand how to create the equation from the given information.
- Understand that the first step to solving the equation is to subtract the amount of the increase from the end result.
The games that are considered in this section include:

**Fraction Flags**

**Google Map Activities**

**SimCity**

**Graphing Stories**
Fraction Flags

| Price: Free  
| Platform: Online Access  
| Subject: Math  
| Level: 1  
| Tech Requirements: N/A |

To create a design of a flag using halves and quarters

The student will know that data can be represented in pictorial forms by means of tables, diagrams and charts with simple scales.

Fraction Flags is an online game that can also be accessed and played using the Interactive Whiteboard as well as other devices. The scope of Fraction Flags is to design flags using the colour palette provided and according to the fractions selected from the menu. This means that the learners will be able to transform word fractions into pictorial representations on a grid, to create a flag design.

Fraction Flags can be accessed online via: http://www.oswego.org/ocsd-web/games/fractionflags/fractionflags.html

The player will need to select the proportions of the flag from the menu. Once the player starts the game, s/he will be given an option of 6 colours to choose from. To add the colour to the flag, and create the design, the player will have to select the squares in the grid. When the flag has been created to the required proportions, the player can click in finished to receive feedback.

This game can be played as a whole class activity as part of the introduction to a lesson on data handling. This activity should preferably take around 10mins and be followed up by some debriefing times as outlined below.
As part of the discussion following this game, the teacher can ask the following questions:

- Can you draw your own design of a flag and determine the proportion of the colours used?
- What other designs would you think of that might use the same proportions?
- Can you think of some proportions? (each student will exchange proportions and design a flag [or other object])
Google Maps Activities

<table>
<thead>
<tr>
<th>Price: Free</th>
<th>Platform: Online Access</th>
<th>Subject: Math</th>
<th>Level: 1-2</th>
<th>Tech Requirements: N/A</th>
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</thead>
</table>

To create a series of pictograms and charts based on real world data from Google Maps.

The student will organise and present data in simple tabular forms and construct, read and interpret simple diagrams and charts.

This activity uses the real world data from Google Maps to set out tasks for the learners based on geographical positions for different countries. During this activity the learners will be given 7 data handling tasks, including counting the number of different coloured cars in a car park, and drawing a pictogram to represent the data, as well as identifying objects at street view level, using different charts to display the data collected.

This google maps activity can be accessed online via:
https://www.google.com/maps/d/u/0/viewer?ll=52.957325%2C-1.147728&spn=0.072387%2C0.22316&hl=en&t=h&msa=0&z=12&source=embed&ie=UTF8&mid=12rtzUThj5-erNQmoymxARgHSt45

The player will start on the first place mark and work his/her way through the various simple tasks that have been set out.

This activity should best be carried out as an individual or pair work exercise as it allows the learners to proceed at their own pace. Although there is no direct competitive element for this activity, its real world representation should give rise to a number of tasks and activities. Each observation activity should be followed by the creation of a pictogram or a chart to represent the data visually.
There are a number of other activities associated to this activity, that are of a similar nature and based on different geographical locations. These can be accessed via [http://edte.ch/blog/maths-maps/](http://edte.ch/blog/maths-maps/)

Additional activities could also be planned with the students, using Malta as the geographical location. Debriefing questions for this activity could include:

- What is the importance of observing the objects around us?
- How would you explain data?
- Why is it important to present data in a chart?
- What different charts are there?
- Can you think of other information (about your interests, village/town, school) which you think would be useful to present in charts?
SimCity

Price: €19.99
Platform: PC / Mac
Subject: Math
Level: 1-2
Tech Requirements: N/A

To design, build and create a simulated city environment.

The student will know that data can be represented in pictorial forms by means of tables, diagrams and charts with simple scales.

SimCity is a simulation game where the players need to design and create a city. Players can create towers and living quarters, using green technology for urban development as well as other futuristic technologies to build a utopic society.

Fraction Flags can be accessed online via: http://www.simcity.com
The game can be downloaded both on PC and Mac. The game is a city management simulation game where the player can control a region to a true multi-city scale or a single city. SimCity is a classic city-building simulation game that’s been around in various forms since 1989. It’s very engaging and great fun and the game can also be played in multi-player mode, increasing in complexity but also adding collaboration and team work to the range of skills that can be acquired.
Although this game deals mostly with creativity and planning skills there are additional math skills that can be focused on during gameplay. For example to balance the monthly budget in SimCity, the player needs to understand basic arithmetic. A player would need to be able to compare the actual number of students attending a school with its total capacity, or compare the monthly income and expenses to see if the school is making a profit or a loss. The player also needs to have a good grasp of figures as they allocate the city's budget to different utilities and services.

The more roads and services are added the more this will affect the city's future. The player also needs to be able to read the various line and bar charts in the game that show trends such as crime, power usage and demographics.

SimCity is a game that offers an insight into urban planning and development as well as management. Hence lessons can be combined with other cross-curricular areas to try and understand how real life city management can develop. This game can be combined with the understanding of utilities and services, such as water and electricity, trash removal and recycling, power sources; transport systems, environmental management, and urban planning. Questions can and should include probing for the way decisions are taken and how the decisions affect the future of the city that has been designed and developed.
To create a graph from a short 15 sec video story.

The student will know that data can be represented in pictorial forms by means of tables, diagrams and charts with simple scales.

Graphing Stories is not a game but it’s an activity based on a number of video stories which can be represented in a graph. Graph handouts can be accessed and downloaded directly from the site.

Graphing stories can be accessed freely online via: http://graphingstories.com

A handout for the learners can be downloaded from the site. Each learner or group of learners can watch a video from the list on the site, and then chart out the graph to reflect what they see and observe from the video.

One strategy that can be employed for this particular activity is that of having learners work in pairs of small groups of three. Although the videos are short, it is best to allow around 15 minutes for the completion of one activity. Although there are a number of videos, students can choose one or two video stories and then exchange information about the way they have plotted and charted the graphs.
A discussion about the use of pictorial and graphical representations can include the use of infographics, and other math charts that are used to represent every day and real world data.

This site showing more about infographics can help in stimulating discussions:


Some infographics for discussion could include:

- https://www.good.is/infographics/infographic-how-gaming-is-affecting-our-culture-and-health#open
- https://www.good.is/infographics/interactive-infographic-what-if-waste-had-worth-sponsored#open
- https://www.good.is/infographics/feeding-7-billion-people-and-counting-how-can-we-lose-and-waste-less-food#open
- https://www.good.is/infographics/the-most-diverse-cities-in-the-world#open

Questions that can be asked include:

- What information can you get from these charts?
- Why are these charts useful?
- How are the numbers being presented?
- Can you think about a poster like this that can be done for Malta and what sort of information would need to be collected?
Listening

The games that are considered in this section include:

Audio Defense

Zombies, Run!

Contradiction: Spot The Liar!

Audio Concentration Game

Voscreen
Audio Concentration Game

<table>
<thead>
<tr>
<th>Price: Free</th>
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<tbody>
<tr>
<td>Platform: Online</td>
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<tr>
<td>Subject: Listening</td>
</tr>
<tr>
<td>Level: 1-2</td>
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<tr>
<td>Tech Requirements: N/A</td>
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</tbody>
</table>

Helps to improve listening skills.

The student will learn how to distinguish between different phonemes.

The Audio Concentration Game is a memory game where you need to match pairs of tiles. However the difference between this and the traditional memory match game is that rather than having a picture at the back of the card, a sound is played. Playing is very simple - you turn over one tile and then try to find a matching sound. There are various levels, each getting progressively harder.

Player can access the game from http://www.manythings.org/ac/

The teacher should first explain the game to the students before playing it. When a student clicks on the first tile he has to expose a matching sound in the next turn. Subsequently, a message will tell him if the pair is known. This indicates that he should then be able to make a match. The system can be tricky since it relies on sounds, which are similar to each other. However this is a very good exercise for the player to learn to distinguish between different signs. The scoring system incorporates this principle.
Following the game, the following discussion questions can be used to engage students in further discussion.

- The teacher can explore with the students the phonemes used in the language.
- Students should be challenged to find words, which use the phonemes being discussed.
- Students should be encouraged to find exceptions as well.

Listen to find the pairs.

*bit* *bite* *boot* *bought* *but* *bait* *bat* *bet* *beat* *boat* *Burt* *Bart*

*Click "Start New Game" to begin.*

Charles Kelly’s adaptation of William Warby’s Matching Pairs Card Game

*This is one of the Audio Concentration Games found at www.manythings.org/ac.*
Audio Defense Game

Price: €1.99  
Platform: Mac OS  
Subject: Listening  
Level: 1  
Tech Requirements: Mobile Device  

Helps to improve listening skills.

The student will learn how to listen to audio commands.

A zombie shooter audio-only game made with gut-wrenching 3D sound. The player will put on his headphones and become a blind warrior, fighting off wave after wave of Dr Bastard’s Zombies.

Players can access the game from [http://www.audiodefence.com/](http://www.audiodefence.com/)

The teacher should first explain the game and give the students time to play it. A simulation can be performed in class whereby the class is arranged into a maze. Students are then divided into two groups. Students in the first group have to venture into the class maze blindfolded whilst their peers shout commands in order to help them pass through the maze successfully. Students from the other group create noise so that they make it harder for the player to listen to the instructions. Each time a member of the first group finds the exit, the maze is reconfigured by members of the second group.

Following the game, the following discussion questions can be used to engage students in further discussion.

The teacher should ask the students about the experience. She should delve into the issue of noise and how it effects the transition through the maze. Students should also identify noise in their daily life and see how it is affecting their work.
Zombies, Run!

Price: Free
Platform: iOS / Android
Subject: Listening
Level: 1
Tech Requirements: Mobile Device

Helps to improve listening skills.

The student will learn how to listen to audio commands.

Zombies, Run! is an audio video game set around Abel Township. Players live in a small outpost trying to survive the zombie apocalypse. They have to go through a series of missions during which they run, collect items to help the town survive and listen to various audio narrations to uncover mysteries.

Players can access the game from https://zombiesrungame.com

The teacher should first explain the game and give the students time to play different missions. Students will be asked to take notes about their experience and draw a map highlighting pitfalls, traps, etc. When done, they have to relate their experience to the class. The teacher can provide students with paragraphs relating to two stories (which supplement the missions). The students will read it on their own and ask about any words or expressions they're not sure about, before mingling to tell each other about their section of the text (including any interesting vocabulary from it that they can share). Once they examine the paragraph that they have been given, the teacher takes the paragraphs back. The students then need to discuss with each other what they can recall from the story, they need to identify their storyline and combine the pieces together. The group that finishes this task first wins and they have to relate the story to the class.
Following the game, the following discussion questions can be used to engage students in further discussion.

• How difficult would it be for you to move away from where you’re living now in the case of a Zombie Attack?
• How far can you run without having to stop?
• Can you think on your feet?
• Do you know how to survive in the wild?
• In the future, do you see yourself living in the city or the country?
• What do you enjoy about running?
Voscreen

Price: Free
Platform: Online
Subject: Listening
Level: 1
Tech Requirements: N/A

Helps to improve listening skills.

The student will learn how to understand dialogue.

Voscreen is a free website aimed at helping users improve their English language skills on their own through short video clips. Learning and improving English is more enjoyable than ever with Voscreen’s video learning environment since it is based on video extracts obtained from youtube. When a user starts, he has to select his native language, watch the clip, and then choose the accurate translation to the short phrase uttered in the clip. For each correctly selected translation, he gets a point and moves on to the next clip in the series.

Following the game, the following discussion questions can be used to engage students in further discussion.

- How does stress change the meaning of a word?
- Can they relate examples of when they used stress in their conversations?
- Did it reach the desired outcome?

Players can access the game from [http://www.voscreen.com/](http://www.voscreen.com/)
Voscreen lends itself perfectly to practice paraphrasing. The teacher should choose the level or grammar structure, play the clip, and ask students to paraphrase what they’ve just heard. Compare their ideas and, finally, check with the two options offered by Voscreen.

Play a random clip. Ask your students to imagine what happened after/before the scene they see. It’s a great way of revising past tenses or to come up with predictions. The more advanced the level, the more complex storylines might be encouraged.

If the teacher chooses the Questions or What category in the VoStructure tab, she will get access to a series of clips featuring different types of questions. Play a clip, and ask students to write down answer(s) to the questions asked in the video. It can be a speed competition (who comes up with a logical answer first) or about imagination (who comes up with the most logical answers in the time given).

The most suitable categories are the ones containing simple sentences. The game can be played to practice sentence stress: differentiate between content and structure words and see whether the meaning of the sentence changes once different words are stressed. Given the clips already serve as a pronunciation model, students will either try to recreate what is heard or modify it to convey different meaning (if possible).
Contradiction: Spot the Liar!

Price: €4.50  
Platform: iOS, Mac, Windows  
Subject: Listening  
Level: 1  
Tech Requirements: Mobile Device

Helps to improve listening skills.

The student will learn how to understand dialogue.

Contradiction: Spot the Liar!, also known as Contradiction is an All-Video Murder Mystery Adventure. The game follows the investigation of Detective Inspector Frederick Jenks into the apparent suicide of Kate Vine in the small village of Edenton.

Players can access the game from http://www.baggycat.com/

Allow the students to play the game. Then explain to the class that they are going to play a murder mystery game. Everyone will be a character in the game and one of them is the murderer! Students are given some background information about the murder, which happened during a party. Each student is given a character card. They need to read and memorize the information. The aim is to act out the game, become the character and not to just read the information from the card. The students then need to collect information about everyone who was at the party and fill any relevant information on the sheet. This stage is a mingling activity with students asking questions and collecting information. The teacher will monitor the language used at this point and correct where necessary. When the students have spoken to everyone who was at the party, they have to go back to their original groups. Take back the character cards. Using the information they have collected, the students try to work out who killed the victim and why they did it.
Following the game, the following discussion questions can be used to engage students in further discussion.
What were the most vital clues in the case?
Perform similar analysis on other detective storybooks.
The games that are considered in this section include:

Taboo (Just Say It!)

Once Upon A Time

Hide and Speak

Human Experience Bingo

There came an echo
Taboo

**Price:** Free / At a charge  
**Platform:** Board / App / Online  
**Subject:** Speaking  
**Level:** 1  
**Tech Requirements:** Internet

Helps to improve speaking skills.

The student will learn how to express himself.

Every card in Taboo shows one main word. Below the main word you will find a list of words that are similar to the main word, either synonyms (words which have the same meaning) or words which are closely associated with the main word. Your task is to describe the main word to someone without using any of the words underneath it.

The game can be played by accessing: [http://taboogame.net](http://taboogame.net)

The teacher introduces the students to the game. Then she presents a topic (such as Countries) followed by a short abstract on the board and explains the context/meaning to the students. She reviews the facts associated with that topic. The class is then split into two teams and they can play the game. Students are to correctly guess the correct topic (Country name) written on the card without saying the taboo words that are listed underneath.

Divide class into four equal teams. One member chooses a slip of paper with the sentence written on it. He/she then gives up to 5 adjectives to describe the subject (ex. small, young, cute, fair-haired, or sweet to describe “child”). The team then tries to guess the subject. If they are correct, the team scores 1 point. The clue-giver then gives up to 5 adverbs to describe the verb (ex. happily, humorously, gleefully, sweetly, joyfully to describe “laughed”). If the team guesses correctly, they earn 3 points. If the team misses either the subject or verb, the next team has an opportunity to “steal” the points by having one of their members give one clue. The player is disqualified if he/she gives a noun instead of an adjective or a verb instead of an adverb or gives more than a one-word description.
Following the game, the following discussion questions can be used to engage students in further discussion.

The teacher should ask students if they enjoyed the story (why/why not?). Create discussion with follow-up questions from responses of the students.

Students can discuss the game and propose ideas of how it can be enhanced further.

The can collaborate together to create new cards and make then play it in future lessons.
Once Upon a Time

Price: Free / At a charge
Platform: Board / App / Online
Subject: Speaking
Level: 1
Tech Requirements: Internet

Helps to improve speaking skills.

The student will learn how to express himself.

Once Upon a Time is a card game that lets students tell a story. Everyone gets some cards that have story elements and one card that has an ending. One narrator (the person telling the story) gets to start telling the story, trying to use the cards in their hand and lead the story to the ending they have. Other players can interrupt by placing down their own cards and continue the story with different ideas instead. It is a really fun game where no one really “wins” —the point is to tell an interesting story.

The game can be played by accessing: http://www.atlas-games.com/pdf_storage/ouat_rulebook.pdf

Following the game, the following discussion questions can be used to engage students in further discussion.

- The teacher should ask students if they enjoyed the story (why/why not?). Create discussion with follow-up questions from responses of the students.

The students should then repeat the exercise at home. They can be given five cards each and they have to come up with a story for the following day.
Read a traditional short story to students. As you read, ask students to listen for the specific events that happen in the story as you read. Ask students to share the events that they remember from the text, and list the words on the board or overhead. Introduce the story element plot by writing a basic definition on the board or on chart paper. Read the story again. Ask students to listen for events that fit the definition of plot that you've shared. Pause as you read to add events to the board or overhead. Return to the list of events and your definition of plot. Read through the entire list and make any changes necessary (additions, combining similar events, and so forth). Separate the list into random or background events and those that are significant to the story by circling the significant events listed. Emphasize that the events that are significant to the story comprise the story's plot. Introduce the traditional narrative plot structure (introduction, rising action, climax, falling action, resolution). Repeat the exercise with cards chosen randomly from the Once Upon a Time Set and create a story with the elements identified earlier. Then divide the students into group and get each group to do the same with another set of random cards. Finally a member of each group has to relate the story to the others.

Students are placed in a circle. Each student is assigned a random card, which is also shown on the board (so that every student knows what the other student has). Then students are given a topic (Say the Knights) and they have five minutes to discuss with the students next to them how they can utilize their card. The student on the left of the teacher is then asked to start relating his story, then the student on his left continues the story and so forth until every student contributed a small piece to the entire storyline. The story is then written and reviewed by all the students. They are free to make changes to it and then the exercise is repeated with the new iteration of the story.
There came an Echo

Price: €15
Platform: Online
Subject: Speaking
Level: 1
Tech Requirements: Internet

Helps to improve speaking skills.

The student will learn how to give commands.

There Came an Echo is a real-time strategy game in which the player assumes command of a small squadron, using an advanced voice recognition system to issue orders. It features a character-driven sci-fi narrative that stars Wil Wheaton, Ashly Burch, Laura Bailey, Yuri Lowenthal, and more!

The game can be played by accessing:
http://store.steampowered.com/app/319740/

Following the game, the following discussion questions can be used to engage students in further discussion.

- The teacher should ask students if they enjoyed the game (why/why not?). Create discussion with follow-up questions from responses of the students.
- The students should then find more example of commands in real life.
Get the students familiar with the game.
Write a Comic Strip. After playing the game, distribute the Commands Comic Strip. Students write captions with the appropriate command under each frame. Volunteers present their comic strips to the class, and read the captions out loud. To differentiate, some students will use simple words, while others may write more detailed captions, with at least three of the six captions containing the imperative form of the verb.
Simon Says. Play "Simon Says" to practice commands. Call out a command, for example, "Simon says, run!" The class must follow only the commands preceded by "Simon says..." Students who obey commands without “Simon says” are out.
Total Physical Response. Do a Total Physical Response activity to teach and practice imperatives. Assign different scenarios to small groups based upon the game. Then have each group collaborate and think of different commands they might hear or say in that space. This can be extended to other scenarios outside the game such as in class or at home. For example, in class, they might hear or say: Stand up. Sit down. Open the book. Close the book. Read. Don’t read. Have each group give their commands to a different group.
Let’s Play. Use different pictures as prompts to practice the expression let’s + verb. For example, with a picture of food, a student might say, “Let’s eat.” Students can elaborate as much as they like. For example, with a picture of someone running, a student might say, "Let’s stop. I’m tired." If pictures are not available, ask the students to act the actions.
Human Experience Bingo

**Price:** Free  
**Platform:** Face-to-Face  
**Subject:** Speaking  
**Level:** 1  
**Tech Requirements:** N/A

Helps to improve speaking skills.

The student will learn how to communicate with team members.

Most students are probably already familiar with the rules of Bingo. Simply get five numbers in a line on a chart. In this case, rather than having numbers, the cards will have experiences and the students must discover who experienced what by conversing with their peers.

Simply prepare the bingo cards.

Following the game, the following discussion questions can be used to engage students in further discussion. The teacher should ask students if they enjoyed the game (why/why not?). Create discussion with follow-up questions from responses of the students. The students should then create other Bingo boards based upon different themes.
Get the students familiar with the game. You can use this as a basis for another get to know you game. Work with your class to compile a list experiences that a person might have had. For example, gone scuba diving, made a birthday cake and eaten sushi would all be good experiences. Work together on the list until you have about 30-40 different experiences. Then, give students a blank bingo board (a 5x5 chart) and have them write one experience in each of the boxes. When the cards are distributed, students mingle and talk to each other to find someone with each experience they have chosen. If a student finds someone who, for example, has gone scuba diving, that student signs the square where your student wrote it on his Bingo board. The first person to get five in a row yells, “Bingo!”

Another variation is to arrange students speed dating style: two rows of chairs facing each other. Each pair then gets two minutes to talk with each other. When time is up, the students in one row shift one chair to the right. The game is over once someone has gotten five spaces in a row on their bingo board.
Hide & Speak

**Price:** Free  
**Platform:** Face-to-Face  
**Subject:** Speaking  
**Level:** 1  
**Tech Requirements:** N/A

Helps to improve speaking skills.

The student will learn how to communicate with team members and to present their answers.

Similar to a game of hide and seek. However in this case, the questions are hidden around the class. Students have to discover where they are hidden and when they find a question, they have to provide an answer.

Simply prepare questions on post-it notes and hide them around the class.

To prepare for this fast paced game, write several questions each on one index card or post-it note. These questions can be either get to know you questions, comprehension questions or questions using current vocabulary words. Before your students arrive, hide these cards throughout your classroom. When they arrive, get the students familiar with the game. At the start of class, break your students into two teams. Explain that you have hidden cards throughout the room. On your word, students will search the room for the cards you have hidden. They can only pick up one card at a time. When a student finds a card, he must bring it to you and answer the question on the card. If he answers it correctly, he earns the card for his team. If he does not answer it correctly, he must get someone else from his team to help him find the answer. Once students have correctly answered the question on their card, they can search for another card. At the end of the game (after a certain amount of time or when all the cards have been found) the team with the most cards in their possession wins.
Following the game, the following discussion questions can be used to engage students in further discussion.

- The teacher should ask students if they enjoyed the game (why/why not?). Create discussion with follow-up questions from responses of the students.
- The students should then create other cards based upon different themes.
The games that are considered in this section include:

- **Cathy's Book**
- **U-Ventures**
- **Chronology**
- **Trivial Pursuit**
Cathy's Book

Price: €0.99
Platform: iOS
Subject: Reading
Level: 1
Tech Requirements: Mobile Device

Helps to improve reading skills.

The student will brush up his reading skills.

Cathy's Book: If Found Call (650) 266-8233 is a young adult novel, which make use of alternate reality gaming elements. The book follows a teenage girl whose boyfriend has left her. Young and artistic Cathy left the book for Emma, her best friend, so that the latter can use the clues provided and figure out where Cathy went. The story begins when Cathy is dumped by her boyfriend, Victor. The next morning she notices a strange mark on her arm, but sets it aside as a spider bite. She and Emma later determine that the mark on her arm is in fact a needle mark from a blood test Victor performed on Cathy. While trying to confront Victor about the blood test, she encounters various members of the Chinese underworld, as well as adventure and mystery. It also includes; phone numbers which readers can call in order to discover more clues, websites that readers can explore, etc.

The game can be accessed from http://www.cathysbook.com/
After going through the game, the student should review its plot and major characters with the class. The teacher may choose to ask students to summarize each chapter. Write the names of characters on the board as they are introduced. When each chapter has been summarized, ask the class to brainstorm words and phrases that describe the characters.

Divide the class into different groups and assign each one a theme. Explain that each group must answer questions about their theme. Then each group will have time to prepare a unit on their theme and to teach it to the class. Apart from giving an overview of every theme, each group will also include a creative or visual presentation, such as posters or drawings, a reenactment of a scene, or a presentation of modern parallels. The groups should prepare questions that will encourage the class to participate in a discussion.

Following the game, the following discussion questions can be used to engage students in further discussion.

- What are the themes, which were not covered in class?
- How does each student relate to any of the themes?
- How can the story continue?

A book hunt can be organized in the library in order to find books related to the main topics of the game.
U-Ventures

Price: €5
Platform: iOS
Subject: Reading
Level: 1
Tech Requirements: Mobile Device

Helps to improve reading skills.

The student will brush up his reading skills.

The classic children's book series, Choose Your Own Adventure, puts the reader, in charge of his own fate by asking him to take decisions and continue story on specific pages (based upon that decision). The U-Ventures iPhone and iPad application aims to revive the series for a digital generation of readers. It incorporates sounds, lights and special effects into the traditional Choose Your Own Adventure format. The first U-Venture is a sort of a sequel to a classic title, The Cave of Time. In "Return to the Cave of Time," the U-Venture, you go back in the cave but from that point on, the reader chooses her own course. The idea in writing one of these is to try to mirror a daring adventure, one that would be too dangerous to undertake in real life.

The game can be downloaded from the App Store: https://itunes.apple.com/us/app/u-ventures-interactive-books/id594081141?mt=8
Students meet in literature circles to read an adventure story, and then combine both reading and writing skills to write an original “choose your own adventure” story. Students begin by reading one or more adventure stories and discussing elements unique to this type of story, such as the second-person point of view, as well as setting, character, plot, and conflict. Small groups begin by planning out the first section of the adventure story using graphic organizers. They then move into smaller groups for each split in the story’s plot until finally the students are writing their own endings. Using “choose your own adventure” style, groups will create their own books with the parts of the story linked to each other. Students can also create a simple online version of the book by using their own computer skills.

Following the game, the following discussion questions can be used to engage students in further discussion.

- Students should evaluate part of the lesson. Different groups should compile a reflective narrative tracing the steps they took in the process, what problems did they face, how they worked out their problems, and how they feel about their final project. Students could include individual assessments of their contributions to the group project.
- Teachers may evaluate both the process and the final project by keeping anecdotal records of students' participation in the process.
- They can also wish to use the Web page as a group Website projects.
Chronology

Price: €17  
Platform: Board game  
Subject: Reading  
Level: 1  
Tech Requirements: N/A

Helps to improve reading skills.

The student will learn to read and learn interesting facts.

Chronology is a card game played using hundreds of cards. Each card depicts an event in history (can be an invention, a discovery, a historical event, etc) on both sides, with the year of the event on only one side. Players take turns placing a card from their hand in a row on the table. After reading the description and placing the card, the player reveals the date on it. If the card was placed correctly with the date in chronological order with all other cards on the table, the card stays in place; otherwise the card is removed from that play and the player takes another card from the deck. The first player to get rid of all his cards by placing them correctly wins.

The game can be purchased from:  
https://www.amazon.com/CHRONOLOGY-BOARD-GAME-Buffalo-Games/dp/B007MHIYFM

Following the game, students can be asked to find something at home that relates to one of the events and they are then invited to add that element to the timeline. They can also be requested to choose a particular period and create a timeline of their own as a mini-project.
Students are first allowed to play the game. The class will then collectively construct a timeline. Smaller poster board-sized lines that include only a few elements may supplement the main classroom timeline. Bold colored markers are used to place dates on the papers. The increment in years depends on the lesson. The class will then decide how to represent elements such as using text, illustrations, photographs, etc.

When covering a particular event in class, the students will be asked to vote whether they would like to insert an element in the timeline or no. The representation of the new element is then taped to the timeline, with a date and title prominently visible.

Students will then be asked to go through the timeline on their own and then one of the students will be invited to stand-up and do a walk-and-talk aloud. The students don’t need to account for every element on the line; they should just use the elements as prompts to tell a story about a particular era or theme that was happening during the same time period.

The timeline should not be limited to dates of events but it should include elements from other disciplines as well. If the students encounter a topic in other areas such as English, Mathematics, Religion, etc. it should be added to the timeline.
Trivial Pursuit

**Price:** Free / At a charge
**Platform:** Board / App / Online
**Subject:** Reading
**Level:** 1
**Tech Requirements:** N/A

Helps to improve reading skills.

The student will learn to read and learn interesting facts.

Trivial Pursuit is a board game where each player has a circular playing piece with six pie-shaped holes. The goal of the game is to collect a pie in each color. The colors correspond to different question categories. The board consists of a circular track with spaces in seven different colors. Six of the colors correspond to question categories while the last color gives a new dice roll. Six spaces along the track are "pie spaces", and from these there are "spokes" of track leading to the middle of the board. Players roll a die and move along the track in any direction they like. When a player stops on a color they get a question of the appropriate category. If the player answers a question correctly while on a pie space, they get a pie of that color (assuming they don't already have it). A correct answer on another square allows the player to roll again. Once the player has one pie in each color, he can move along the spokes to the middle of the board to win the game.

The game can be played at various online sources such as [http://www.searchamateur.com/Play-Free-Online-Games/Trivial-Pursuit-90s-Edition.htm](http://www.searchamateur.com/Play-Free-Online-Games/Trivial-Pursuit-90s-Edition.htm)

Following the game, students can be involved in preparing new questions. This will obviously save preparation time and give students valuable practice in doing research and forming questions. Quizzes work really well with big groups so if you only have a small class it can be nice to team teach with another teacher and involve their class too.
Place students into teams and get them to think of a team name. Prepare answer sheets in advance.

For the first round, each team will be asked to roll the dice and move to a new position. When all the teams have moved, the teacher will then reveal all the questions without giving any answer. Then they have 5 minutes to go online and search for the answer. Once they come back, a new round begins.

It is advisable to keep a record of the running total on the board as you go through the quiz. This will help to keep students interested and following the progress of the teams.

At the end of the quiz it would be good for the winning team to get a prize of some sort, even if it’s something small, like a certificate, to acknowledge their achievement.
The games that are considered in this section include:

- Scrabble or Dabble
- Freeze It
- MineCraft
- The Silent Age
Scrabble or Dabble

**Price:** Free / At a charge  
**Platform:** Board / App / Online  
**Subject:** Spelling  
**Level:** 1  
**Tech Requirements:** Internet

Helps to improve writing skills.

The student will learn how to write specific words.

To play Scrabble, the player has to arrange letters into words on a playing board. Letters earn him points, and special tiles on the board give extra points. The goal of the game is to beat the opponent(s) by writing the best words and putting them in the best place on the board. The nice part about this game is that the player does not need to know a lot of words before he can play the game since Scrabble games are often played with dictionaries close by.

SCRABBLE FREE by Electronic Arts is available both on the App Store and on the Android Store

- Following the game, the following discussion questions can be used to engage students in further discussion.
- How would you change the game to make it more fun if you could?
- How many words did you learn today and what were they?
- Do you think you can find more words next time?
• Spelling tests – Divide the class into teams and give each team a set of Scrabble letters. Get them to spread out the letters on the table so they’re all facing up. Then give clues for words you want to test them on, e.g. ‘the day before Wednesday’, students ‘write’ TUESDAY on the table by selecting the scrabble letters. ‘What’s this in English?’ – point to things in the classroom, draw on the board etc. Once students get the idea, ask one of them to lead the game and give the clues instead of you.

• Tenses – If students are learning the past simple tense, give them the sets of letters and you say the infinitive and they write the past simple forms using the letters. Eg. You say ‘go’ students write ‘went’ in scrabble letters.

• Crosswords – Put students in groups and give each group one set
Helps to improve vocabulary.

The student will learn how to write specific words.

Freeze It is a creative-thinking fast-paced category-based game. It's a word game that makes you think fast, but also think smart. Once it starts, the players have to write as fast as they can 1 word for each category. The player who gets a correct answer for each category in the lowest time can Freeze the opponent's by stopping the clock. When the clock stops, the players are Frozen and can't input any more answers.

Freeze It is accessible for free from http://www.freezeit-game.com/

The teacher can discuss categories in class such as Animals, Fruits, Colors, etc. Students are then divided into groups and asked to look for members of those categories for a specified amount of time, either by using online sources or dictionaries. When the time is up, a tournament is organized between groups whereby different groups have to compete with each other in order to freeze the other group. A variant of the previous activity makes use of a different language. E.g. the teacher discusses the words in Maltese or Swedish and then the students have to complete the previous activity by translating their words into English.
Following the game, the following discussion questions can be used to engage students in further discussion.

- How would you change the game to make it more fun if you could?
- How can we further divide the words learnt into subcategories? E.g. different groups of animals
  What other words can be associated to those words? E.g. in which country do we find the animal or the fruit?
Minecraft

Price: Edu version is Free
Commercial version €20
Platform: App / Online
Subject: Writing
Level: 1
Tech Requirements: Computer

Helps to improve writing skills.

The student will learn how to write simple reports.

Minecraft is a sandbox game (meaning that the player can pretty much do what he likes) about placing blocks and going on adventures. Randomly generated worlds are explored and the player can build amazing things from the simplest of homes to the grandest of castles. He can play in creative mode with unlimited resources or mine deep in survival mode, crafting weapons and armor to fend off dangerous mobs.

Can be bought online from https://minecraft.net/en/

- Post-Game Play Reflection – Give each student a simple journal or a page on a collective wiki and have him or her write about their experience in the game. Call it something like the “Explorer’s Journal”. Guide them by giving them prompts with a question: What did they do during today’s session? How do they feel about it? What did they discover? Getting them to put pencil to paper or peck out a sentence on a keyboard can be a struggle. Fresh from a gaming session, they are usually bursting with ideas about what to write about. Post-Game Writing is a great way to end a fun gaming session.
• Pre-Game Play Writing – Using a journal or wiki, challenge the students to write about what they’re going to do in the game before they log in. What are their plans or goals? Are they going to help a classmate? Explore uncharted territory? Finally defeat a boss? By having the student think about their limited game time, they are often more organized in their game play. Or they simply write down their plans and forget them at the first sign of an unexplored cave. Either way, you’ve had them contemplate their game play in a mindful way that has produced some writing.

• Maps & Diagrams – For many students, drawing out their ideas is a great first step to writing success. The journals are excellent for having students map out the zones in their game or draw a diagram of their latest (or future) build. When you encourage them to add labels, titles, legends and more, they are building their multi-modal literacy skills. Diagrams and other graphic organizers are also a great way for a student to start a longer writing piece in their journals.

• Walkthroughs & Guides – Students quickly become experts in video games and giving them an opportunity to share their knowledge is a great way to boost their literacy skills. Have them share it with others by creating guides and walkthroughs. They show the path of a player, step by step, how to do something, from defeating a boss to the best method to farm herbs. This has tie-ins to non-fiction and procedural writing units. Student can focus on headings, number steps and all that fun stuff. Minecraft in particular is a treasure trove of knowledge sharing. Students can explain how to build a structure or how to craft an item. While much of this is available online, having them write it out in their own words will prove to be both a challenging & rewarding activity.

• Character Biographies – One of the biggest attractions for many students to video games are the avatars. Having your student create a back-story for their Minecraft avatar is always a fun activity. How did they get to the land? What do they want to achieve (ie build the tallest tower?) Who are their allies in the game? By supplying additional details, students can really build up deep stories about the character they play in game.
Following the game, the following discussion questions can be used to engage students in further discussion.

- Critique each other’s work or existing videos and guides found online.
- Open up discussions around critical literacies and asking questions of the author such as:
  - What key information did the author miss?
  - Why?
  - How could you make it better?
- Written walkthroughs also naturally lead to video walkthroughs.
- Some of the students might be “reluctant reader.” They’re the students who just don’t seem interested in anything remotely book-like. Finding books that connect with their interests is always a great first step. And many of these reluctant readers connect in a big way to video games. The following is a list of books which tend to entice young gamers:
  - Epic by Conor Kostick
  - Heir Apparent by Vivian Vande Velde
  - For the Win by Cory Doctorow
  - Invitation to the Game by Monica Hughes
  - Gameworld by CJ Farley
The Silent Age

Price: Free
Platform: App
Subject: Writing
Level: 1
Tech Requirements: Mobile Device

Helps to improve writing skills.

The student will learn how to write simple reports.

The Silent Age is a point-and-click adventure game that puts players in control of Joe, an average janitor who is thrown into remarkable circumstances. Joe's life is quickly turned upside down as he meets a time traveler who informs him that the world will end unless he is able to stop it. Joe receives a time traveling device which players will later use as one of many tools for solving the game's various puzzles. Players spend their time working through the different settings of the game, gathering important information, tools, and plot points. Each new setting requires players to solve a series of puzzles in order to advance. Whether searching for the key to a locked door, figuring out how to fix the tire on an ambulance, or searching for the address of the mysterious time traveler, players must utilize the available items and clues in their environment to progress.

The Silent Age is accessible for free from:
http://www.thesilentage.com/

Following the game, the following discussion questions can be used to engage students in further discussion.

- Each setting requires players to discover new clues and tools. Ask the student how he was able to figure out which tools would be applied in which situations?
- Were there any particular clues that helped him determine where other important items were?
- Try to come up with some situations in which the student had one particular idea of how to solve a puzzle, but actually needed an alternative method.
- Were there times when the student thought being able to "think outside the box" helped him solve a particularly challenging conundrum?
The game requires players to explore their environment, searching for useful tools and clues. Each puzzle must be executed in a particular order. What may seem unimportant initially may factor into solving the puzzle later. Players must be aware of the game environment, making note of potentially important clues and information for later. For example, in one chapter, players locate an out-of-place shape covered in dust on the ground with which they are unable to interact. While exploring and completing other puzzles, players obtain a broom and hook. Remembering the shape on the ground and the clue that it was "covered in dust," players can return to clear off the dust revealing a manhole cover, which is now easily removed with the hook. Working Memory is an essential component to The Silent Age, which presents information and clues in a seemingly random order. Thus the teacher should get the students to start a notebook where they will write their own notes. They will write down important information or important clues in order to keep track of the wide variety of information. An important element is how to structure this information in such a way that it is easily retrieved when needed. Navigation is a very important real world skill. The teacher should discuss with students about remembering directions to get to school, work, or a restaurant. They should be given the task of being the "navigator" while going somewhere they have been before. Have her do her best giving turning directions or naming what streets to walk on. It is important to discuss about recalling the walking direction to a familiar spot and the various skills which are required to do that. Finally, all of this information can be written down in a guide.