

ESCAPE

LUOVA

**USING ONLINE ESCAPE ROOMS TO
BUILD CREATIVE THINKING SKILLS**

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Introducing Online Escape Room learning

As educators and as humans we are surrounded by challenges – they are large, small, local, global, short, and long term etc. Some we rise to, some we dread, some we try to address, some we try to ignore.

Ultimately, how we individually and communally respond to challenges will ultimately determine our future. The often-hectic pace of school, work, family, and social life rarely gives us time to consider different perspectives and design thoughtful solutions.

When and how do we learn how to address challenges and create sustainable solutions?

Without an effective and efficient framework to think more deeply, we often repeat the same mistakes and can overlook innovative ideas. As problems become increasingly complex and intertwined the need to develop a generation of engaged and critical learners equipped to identify different challenges and develop innovative and sustainable solutions is crucial.

Challenge-based learning – of which online escape room learning is one example - is an effective learning framework first initiated at Apple, and now used in universities, projects and institutions around the world. The framework can empower learners, students, teachers, administrators, and community members to address local and global challenges while acquiring content knowledge in a whole range of subjects.

Through Online Escape Room Learning, students and teachers can make a difference and prove that learning can be deep, engaging, meaningful and purposeful.

For the hundreds of millions of people involved in formal education all around the world – the majority of these learners are focused on acquiring the knowledge and skills necessary to move to the next educational level and eventually enter the world as a productive member of society. Online escape room learning provides a framework for participants to accomplish this while building 21st century skills, developing a framework for life-long learning, and making an immediate impact on the world.

Imagine millions of empowered learners focused on creating solutions to local and global challenges as part of their schoolwork. We have the power to make the world a better place.

This document will provide the following **key learning outcomes**:

- Understand the technical requirements needed to make a digital escape room
- Use Google Forms or Google Sites software, to create challenges, puzzles and activities
- Find appropriate resources to build digital escape room challenges
- Acknowledge the different types of puzzles and challenges
- Use several ways to generate ideas for online challenges
- Have tools/apps to boost creativity

Get ready!

1. We are all learners – We are all teachers

By moving beyond the traditional hierarchy of the school and classroom, we can create environments where all stakeholders can work together to meet academic objectives while solving authentic challenges around us.

Online educational escape rooms are just some of the tools that have been developed by pedagogic and game-theory experts, as vehicles to present challenge-based learning content to learners of all ages and abilities. While we are all familiar with traditional escape rooms; the benefits of transferring escape rooms online and using them for educational purposes is that firstly, there is no cost requirement as these resources are typically built on Google Forms or Sites and these are freely available. In this sense, the only limitation placed on developing these online challenges is the imagination of the creator of the challenges! In addition, by bringing these challenges online, you also have the potential to develop the digital skills of young people, and to support them to apply their digital skills to enhance their own learning.

When we speak of the theory behind developing online educational escape rooms, the pedagogic theory which supports these resources is the theory of challenge-based learning. Challenge-based learning emerged from the “Apple Classrooms of Tomorrow—Today” (ACOT2) initiated in 2008 to identify the essential design principles of a 21st-century learning environment. Starting with the ACOT2 design principles, Apple, Inc. worked with exemplary educators to develop and test challenge-based learning.

Challenge-based learning provides an efficient and effective framework for learning while solving real-world challenges. The framework is collaborative and hands-on, asking all participants (students, teachers, families, and community members) to identify big ideas, ask good questions, discover, and solve challenges, gain in-depth subject area knowledge, develop 21st-century skills and share their thoughts with the world.

Challenge-based learning, as presented through online educational escape rooms, builds on the foundation of experiential learning and leans heavily on the wisdom of a long history of progressive ideas. The framework is informed by innovative ideas from education, media, technology, entertainment, recreation, the workplace, and society.

When faced with a challenge, successful groups and individuals leverage experience, harness internal and external resources, develop a plan and push forward to find the best solution. Along the way, there is experimentation, failure, success and ultimately consequences for actions. By adding challenges to learning environments the result is urgency, passion, and ownership - ingredients often missing in schools.

Challenge-based learning, through online educational escape rooms, is a flexible framework; with each implementation, new ideas surface, the framework is reviewed, and the model evolves.

2. Challenge-based learning, a multi-faceted learning tool

Challenge-based learning provides a significant list of advantages, when compared to traditional learning approaches. These include:

- A flexible and customizable framework that can be implemented as a guiding pedagogy or integrated with other progressive approaches to learning.

- A scalable model with multiple points of entry and the ability to start small and build big.
- A free and open system with no proprietary ideas, products, or subscriptions.
- A process that places all learners in charge, and responsible for the learning.
- An authentic environment for meeting academic standards and making deeper connections with content.
- A focus on global ideas, meaningful challenges, and the development of local and age appropriate resources.
- An authentic relationship between academic disciplines and real-world experience.
- A framework to develop 21st-century skills.
- Purposeful use of technology for researching, analysing, organising, collaborating, networking, communicating, publishing, and reflecting.
- The opportunity for Learners to make a difference now.
- A way to document and assess both the learning process and products.
- An environment for deep reflection on teaching and learning approaches.

A consistent vocabulary is critical to the success of all frameworks and plans. If there are disagreements, stated or unstated, about language at the beginning, the end results will be unsatisfactory.

3. Everyone is a learner

Ubiquitous access to information creates the opportunity to break down the traditional hierarchical structure of learning environments. In this new paradigm, all stakeholders become teachers and learners. The learners (young people, youth workers, teachers, administrators, families and community members) actively share the responsibility (and workload) for creating and participating in the learning experience. The framework does not diminish or demean the role of teachers, youth workers and other adults in the learning environment as they still have the primary responsibility for a successful learning experience. It does relieve the burden of having to do all of the work by deeply involving young people throughout the entire process. Youth workers continue to teach and lead the group sessions, but now have the freedom to learn with the young people in their group. Young people continue to learn but now share in the responsibility of defining the journey, aligning to standards, acquiring resources and teaching.

4. Moving beyond the four walls of a classroom

Involving community members in the process expands resources, creates opportunities for authentic learning and moves the responsibility of education to the larger community.

5. Learners inspired; Learners directed

Meaningful connections are made between content and the lives of learners. The more passionate learners are about the content, the deeper the learning, the more control all participants have over the process, the higher the level of ownership.

6. Challenges

Challenge are posed to the learners as situations or activities that create a sense of urgency and spur action among learners to complete the task.

7. Content and 21st century skills

Authentic learning experiences foster in-depth content knowledge and help students organically develop 21st-century skills such as creative and critical thinking, collaboration, communication, information literacy, flexibility... These skills do not become "one more thing" to be addressed by the teacher but emerge from the challenge experience.

8. Boundaries of Adventure

Boundaries are provided to guide the way and provide freedom for learners to take ownership of the process. At the beginning or in specific situations, the limits will be narrow, but the goal is always to move towards more freedom and responsibility for the learner.

The idea of “Boundaries of Adventure” comes from experience guiding wilderness trips. When coming onto camp, the guides set boundaries of adventure to provide the campers with enough space to have an adventure while keeping them safe. As the trip progresses and the campers became more skilled, the boundaries increased until the campers set their own boundaries.

9. Space and Freedom to Fail

Provides a safe space for all learners to think creatively, try new ideas, experiment, fail, receive feedback, and try again. All the phases of the framework include opportunities for iteration.

10. Slowing for Critical and Creative Thinking

To ensure full participation and to provide opportunities for deep thinking, the learning process is intentionally slowed down at times.

11. Authentic and Powerful Use of Technology

Technology is used to research, communicate, organise, create and present information. The use of technology allows learners to own and transform the learning experience.

12. Focus on Process and Product

The journey to the solution is valued as much as the solution. Throughout the challenge-based learning experience there are opportunities to evaluate and assess both the process and the products and outcomes of the learning.

13. Documentation

During each step of the challenge process, the learners document and publish using text, video, audio and pictures. These artefacts are useful for ongoing reflection, informative assessment, evidence of learning, portfolios and telling the story of their challenge.

14. Reflection

Throughout the process, learners continuously reflect on the content and the process. Much of the deepest learning takes place by considering the process, thinking about one’s learning, and analysing ongoing relationships between the content and concepts.

The Framework

An incremental process

The challenge-based learning framework is an incremental and flexible process which can be divided into three interconnected phases, as follows:

- **Phase 1:** Engage,
- **Phase 2:** Investigate,
- **Phase 3:** Act.

Each phase includes activities that prepare learners to move to the next stage. Supporting the entire process is an ongoing process of documenting, reflecting and sharing.

Phase 1: Engage

Through a process of essential questioning, the learners move from an abstract idea to a concrete and actionable challenge.

'Big Ideas' are broad concepts that are explored in multiple ways and are relevant to the learners, and the larger community (e.g. health).

Essential questioning allows the learners to contextualise and personalise the 'Big Idea'. The end product is a single essential question that is relevant to the individual or group (e.g. What do I need to do to be healthy?)

Challenges turn the essential questions into a call to action by charging participants to learn about the subject and develop a solution. Challenges are immediate and actionable.

Phase 2: Investigate

All learners plan and participate in a journey that builds the foundation for solutions and addresses academic requirements.

- Guiding questions point towards the knowledge the learners will need to develop a solution to the challenge. Categorising and prioritising the questions create an organised learning experience. Guiding questions will continue to emerge throughout the experience.
- Guiding activities and resources are used to answer the guiding questions developed by the learners. These activities and resources include any, and all, methods and tools available to the learners.
- Analysis of the lessons learned through the guiding activities provides a foundation for the eventual identification of solutions.

Phase 3: Act

Evidence-based solutions are developed, implemented with an authentic audience, and then evaluated based on the results.

- Solution concepts emerge from the findings made during the investigation phase. Using the design cycle, the learners will prototype, test and refine their solution concepts.
- Implementation of the solution takes place within a real setting with an authentic audience. The age of the learners, and the amount of time and resources available, will

guide the depth and breadth of the implementation.

- Evaluation provides the opportunity to assess the effectiveness of the solution, make adjustments and deepen subject area knowledge

Before diving deeper into challenge-based learning, through tools such as online educational escape rooms, some thinking about planning and preparation is necessary.

A flexible approach

Challenge-based learning is to be flexible, customizable and allow for multiple points of entry. The approach can extend current practice, serve as the framework for specific capstone events during the academic year, and act as an overarching framework for strategic planning, decision making, and learning.

Types of Challenges

Challenge-based learning should not be “one more thing” added to youth worker or young person’s full plates. The framework is designed to provide structure for current best practices and make logical connections.

Challenge-based learning becomes the framework that holds everything together. For example, a STEM Challenge is combined with service learning resulting in community-based solutions that involve coding or products created in Maker Spaces (a makerspace is a collaborative work space inside a school or a library facility where young learners have an opportunity to explore their own interests; learn to use tools and materials, both physical and virtual; and develop creative projects.)

Here you see that ideas are provided for putting challenge-based learning into practice. These ideas build on each other and provide the scaffolding to move from individual challenges to organisation-wide implementations.

When considering challenge-based learning, through activities such as online educational escape rooms, think about how the framework fits with personal and institutional learning goals and how it can be implemented and supported.

At the macro level, challenge-based learning through these online resources is an overarching philosophical approach that uses a framework of challenges to inform and guide strategic decision making, curriculum development, and classroom practice.

Challenges create a **sense of urgency** and **spur action**. In challenge-based learning, they include a specific structure (engage, investigate and act), vary in duration and intensity and can be incorporated or adapted to most learning environments. Designed variations of challenges that have emerged include:

Nano Challenges

Nano challenges are shorter in length, focus on a specific content areas or skills, have tight boundaries and are more teacher or youth worker directed. Learners typically start with the challenge without identifying a big idea or essential question. The process includes the investigation and act phases, but at a significantly lower level of intensity and often stop short of implementation with an external audience. Typically, Nano Challenges are used as scaffolding leading to more significant challenges or during longer challenges to address specific concepts. Online educational escape rooms are examples of nano challenges.

Mini Challenges

Mini challenges widen the boundaries and provide learners with an increased level of choice and responsibility. An increase in duration allows the learners to start with a big idea and work through the entire framework. The research depth and the reach of their solutions increases, and the focus can be content specific or multi-disciplinary. Taking a “show me what you can do” perspective, Mini Challenges are good for intense learning experiences that stretch the learners and prepare them for longer challenges.

Standard Challenges

Standard challenges are longer and allow considerable latitude for the learners. Working together, learners can identify and investigate big ideas, develop challenges, do extensive investigation across multiple disciplines, and take full ownership of the process. The framework is used from start to finish, including implementation and evaluation of the solution in an authentic setting.

Capstone Challenges

Capstone Challenges are standard challenges used as a culminating academic and intellectual experience for the learners. Examples include a grade level challenge that ends the year in a content area or a senior project that acts as a “thesis” for graduation.

Strategic Challenges

Strategic challenges are for planning at the institutional level. Any organisation can use the framework to define the mission, identify Challenges, create a common language and developed strategic plans. Big ideas like time, achievement, learning, technology and school culture are perfect for starting deep and important conversations. Strategic challenges can be used with young people to encourage them to visualize the future of youth-work, for example.

This list is not designed to be an exhaustive or prescriptive set of challenge approaches. The framework is adaptable to meet the needs of your context.

Examples of Challenge-based Learning through Online Educational Escape Rooms

COMMUNICATION & SELF-EXPRESSION

Introductory level

https://docs.google.com/forms/d/e/1FAIpQLSeaq-2GGzR8Wp-i_HgWKG6FeTq7AAhdV5NfHp9SOkRVJWnmDA/viewform?usp=sf_link

Advanced level

https://docs.google.com/forms/d/e/1FAIpQLSd5v2OWkaFNImYgF4yoykvPaoKjpAo1nVREBD-JeHTyCz6E1g/viewform?usp=sf_link

MOTIVATION

Introductory level

https://docs.google.com/forms/d/e/1FAIpQLSfnP31BWSAkVOPyDJ1UHndR3TKe2gFhsUTd2GjmZOEaNxUUEA/viewform?usp=sf_link

Advanced level

https://docs.google.com/forms/d/e/1FAIpQLSeigK6-LwxP-Cwnm010TGolHx5am50XrYVru0PzJRGPIC9BOQ/viewform?usp=sf_link

COLLABORATION

Introductory level

https://docs.google.com/forms/d/e/1FAIpQLSe6ziFLPsBBv-LdxoEBglOQSZo2ybFl6xWf2o9aqd3aaN-YaA/viewform?usp=sf_link

Advanced level

https://docs.google.com/forms/d/e/1FAIpQLSdEjr63n4U3WsS3Bz_1Y3d3TdZLxxikj7GxaLbUKPYZxuEcHQ/viewform?usp=sf_link

IMAGINATION & ORIGINALITY

Introductory level

https://docs.google.com/forms/d/e/1FAIpQLSdu9wpUwzmV3yB3angjex5znY_eTH1n2uVb5kBQVgnM7jUwdg/viewform?usp=sf_link

Advanced level

https://docs.google.com/forms/d/e/1FAIpQLSevMpSzKL7VZF7U4ClmXik0cp3fu0DB6LIK266wZKqigOTsyA/viewform?usp=sf_link

MENTAL FLEXIBILITY

Introductory level

https://docs.google.com/forms/d/e/1FAIpQLScFSZ-H2V3Sh9pgcFqZdn2XvtC8uG5hziSxnPku8h6YyJoUnw/viewform?usp=sf_link

Advanced level

https://docs.google.com/forms/d/e/1FAIpQLSeQjxyN6BITHaPhGRS6sqrNApJWqvBEF5ovB43zTWhJsiIV3Q/viewform?usp=sf_link

DECISION-MAKING

Introductory level

https://docs.google.com/forms/d/e/1FAIpQLSfeI_hqthUYZkneFnaeDWRWi8Yb8jKkadECTeciRW4lxpviMw/viewform?usp=sf_link

Advanced level

https://docs.google.com/forms/d/e/1FAIpOLsfnfppk7IM_eNHN9ctiEwL7XHqoX3R87IUt25pWo5030Xbbw/viewform?usp=sf_link

More examples are available on the LUOVA e-Learning portal:

<https://luovaproject.eu/index.php/e-learning-portal-2/>

A step by step quick start to developing Online Educational Escape Rooms using Google Forms

Step 1 – Set up a [Google account](#).

Step 2 – Conceptualise the problem. What kind of skills should the game improve? Which competences are you going to focus on?

Step 3 – Reflect on your target group. Who are they? What is their background, age and interests?

Step 4 - Develop a storyline. Keeping your target audience in mind, think about the theme or genre of your game. Where does the story take place and what kind of story is it? Some good inspirations are popular films, books, or games. Take your time with the narrative to make sure it is compelling and engaging. Explain the challenges to the learners so that they know what they have to do to pass to the next level. These can be presented using media-rich video files and then answered in a Google Form.

Step 5 – Start creating a digital escape room via [Google Forms](#) (*template provided in the next section*). Formulate questions that are presented as digital clues for the purposes of the game using attached images, YouTube videos, hyperlinks or links to other [Google Docs](#) documents. Adapt them to the required difficulty level.

Step 6 – Base the answers to these questions around different types of digital clues:

- digital competence: QR codes, YouTube videos, Google Maps coordinates, identifying locations, word count in a file, etc.
- civic competence: history/date of origin
- critical competence: mathematical tasks, abstract reasoning, lateral thinking,
- creative competence: ciphers and coding systems (Morse code, binary code...), foreign alphabets (Cyrillic, Arabic)
- Text - crosswords, word-searches, words written backwards, text written in white on a white sheet, text written in foreign languages, Google translate, anagrams.
- Photographs – naming famous sites, picking the odd-one-out, naming flags, counting items in a photograph.
- Online puzzles – making a jigsaw, patterns, and sequences.
- Navigation puzzles – reading an old map, calculating distance, using Google Maps

Step 7 – Select one of the options for collecting answers. Choose short answer text with response validation to make sure your target audience can only proceed to the next step after correctly solving a puzzle. They would normally be asked to type in a number or text equal to value. If you think the clue might be too difficult, provide them with an additional clue in form of custom error text displayed in case of an incorrect answer. Open text answers might be considered as a way of collecting answers to puzzles requiring discussions on an advanced level challenge.

Annexes

- Templates to prepare an Online Educational Escape Room Challenge

To facilitate the structuring of a Online escape room learning, learners can follow the following template guidelines which will help them to build their Google form challenge using the tutorial in the next step.

Also, it is recommended to divide the learners into groups where some could focus on the scenario while others could build the actual breakout into google form using this template.

Breakout challenges can be made at 4 different levels: **Introductory, intermediate, advanced and expert** and below are the recommended standards for the challenges.

These can be used to adapt later resources for the Final Platform.

Introductory – 3 simple challenges – to include some images, video files, etc.

Intermediate – 4 more complex challenges – to include some images, videos files and prompts for independent research.

Advanced – 5 more sophisticated challenges – to include some prompts for independent research, QR codes and short quizzes.

Expert – 6 challenges – including quizzes and games.

Remember to consider the following key points when developing resources:

- Keep the text to a minimum – this will reduce the amount of translation required.
- Ensure the resources are useful in other countries and contexts.
- Refer back to the Value Propositions to ensure learning is embedded into the materials
- Numbers don't need translating!

BLANK GOOGLE FORM TEMPLATE

Form title:

Room title	Topic & level	
	Title	
	Description	

To be used once per escape room challenge.

Form content:

Section #	Title	
	Description	

To be used once per section.

Section contents:

Normal paragraph	Title	
	Text or Media	

Question paragraph	Question	
	Short text	
	Answer	
	Hint	

This can be used as many times as required depending on the resources or level. Each section could end by saying **“congratulations!”** – in this section, reward the learner for solving the problem, riddle or puzzle posed – and progressing to the next level.

Example of a completed GOOGLE FORM Template

All section can be completed depending on the level of details desired and the number of sections the breakout will contain.

If the Online Educational Escape Room Challenge is about developing entrepreneurial skills, then the title could be chosen in relation to that topic, for example.

Form title:

Room title	Topic & level	Ex. <i>Entrepreneurial skills – Introductory level</i>
	Title	Project no. 41R
	Description	

Section 1	Title	Chapter 1. The beginning of the way.
	Description	

Normal paragraph	Title	You are an MI6 spy. You need to a specific location in the USSR to investigate some mysterious experiments taking place.
	Text or Media	[image1]

Normal paragraph	Title	Further instructions will be provided.
	Text or Media	Are you ready?

Section 2	Title	Crossing the border
	Description	

Normal paragraph	Title	You have been sent to Finland where you are about to cross the border without being caught. You need to meet your contact at a famous place somewhere in Ленинград...
	Text or Media	[image2]

Question paragraph	Question	Where is your contact?
--------------------	----------	------------------------

	Short text	
	Answer	Hermitage Museum
	Hint	2 words, 9 and 6 letters each, both starting with Capital Letters.

Section 3	Title	Did you know?
	Description	Source: Wikipedia 2018.

Normal paragraph	Title	On 1 September 1914, the name of the city, Saint Petersburg, was changed to Petrograd, on 26 January 1924 to Leningrad, and on 1 October 1991 back to Saint Petersburg. During the periods 1713–1728 and 1732–1918, Saint Petersburg was the capital of Imperial Russia. In 1918, the central government bodies moved to Moscow.
	Text or Media	

Normal paragraph	Title	The State Hermitage Museum in Saint Petersburg, Russia is the second-largest art museum in the world, it was founded in 1764 when Empress Catherine the Great acquired an impressive collection of paintings from the merchant from Berlin, Johann Ernst Gotzkowsky.
	Text or Media	

Normal paragraph	Title	Antonio Canova's statue The Three Graces is a Neoclassical sculpture, in marble, of the mythological three charities, daughters of Zeus – identified on some engravings of the statue as, from left to right, Euphrosyne, Aglaea and Thalia – who were said to represent youth/beauty (Thalia), mirth (Euphrosyne), and elegance (Aglaea).
	Text or Media	

Section 4	Title	Route through Voronezh
	Description	

Normal paragraph	Title	After your contact gave you a new identity and Soviet documentation, you have been sent to Воронеж. At the railway station you receive a letter containing a map with a hidden message..
	Text or Media	[image3]

Normal paragraph	Title	Use the map
	Text or Media	https://www.google.ru/maps/@51.676436,39.2025939,16z

Question paragraph	Question	What is the name of the square where you will meet?
	Short text	
	Answer	Lenina
	Hint	1 word in Latin alphabet, 6 letters starting with a Capital Letter.

Section 5	Title	Did you know?
	Description	Source: Wikipedia 2018.

Normal paragraph	Title	Nikolay Gennadiyevich Basov (14th December 1922 – 1st July 2001) born in Voronezh was a Soviet physicist and educator. For his fundamental work in the field of quantum electronics that led to the development of laser and maser, Basov shared the 1964 Nobel Prize in Physics with Alexander Prokhorov and Charles Hard Townes.
	Text or Media	

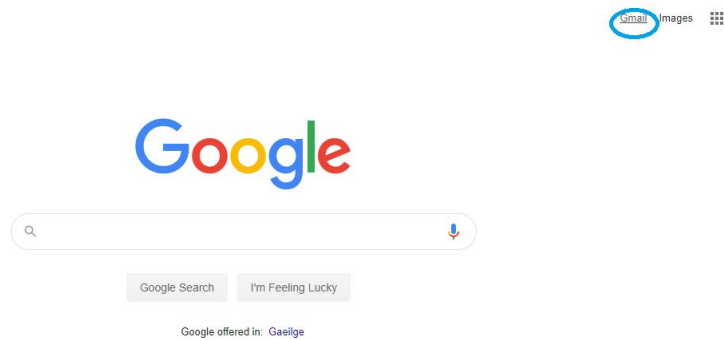
Section 6	Title	Finding your contact
	Description	

Normal paragraph	Title	Once in the square, a kid gives you this message from your contact...
	Text or Media	[image4]

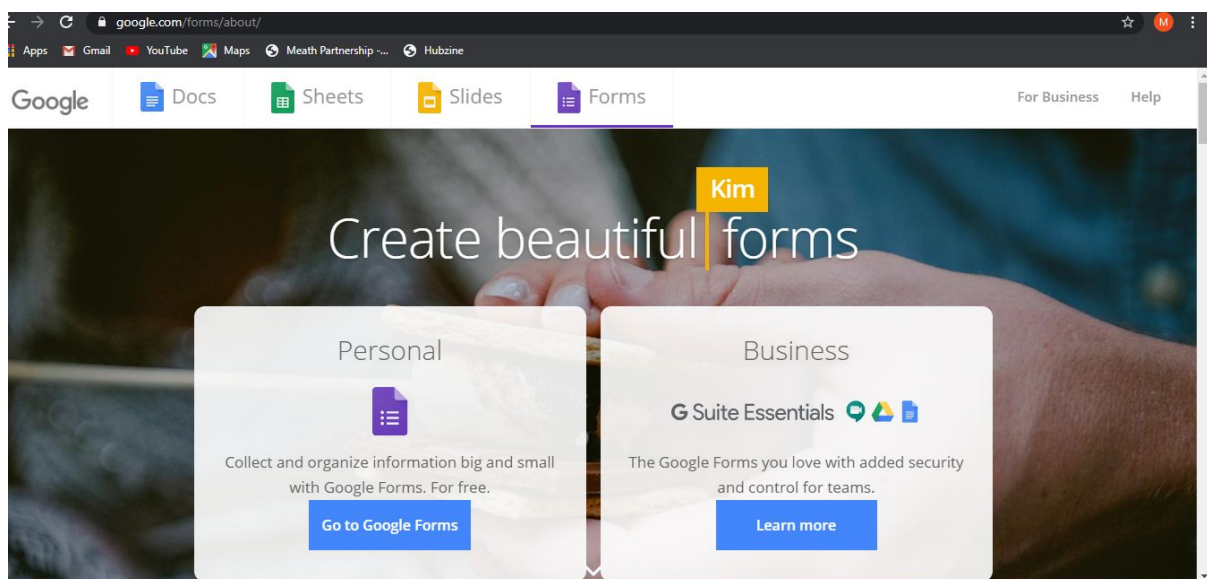
Question paragraph	Question	What feature does your contact have?
	Short text	
	Answer	Beard
	Hint	First letter is a Capital!

- Practical steps to create Online Educational Escape Room challenge

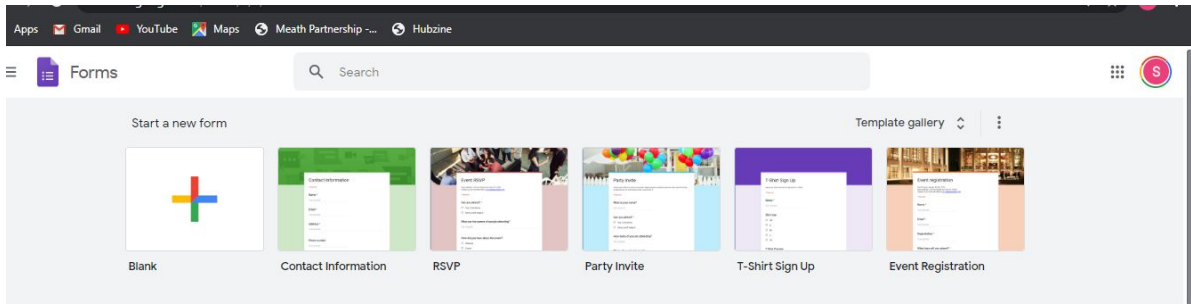
Step 1: Create a Google account



Step 2: Google search for "Google forms"

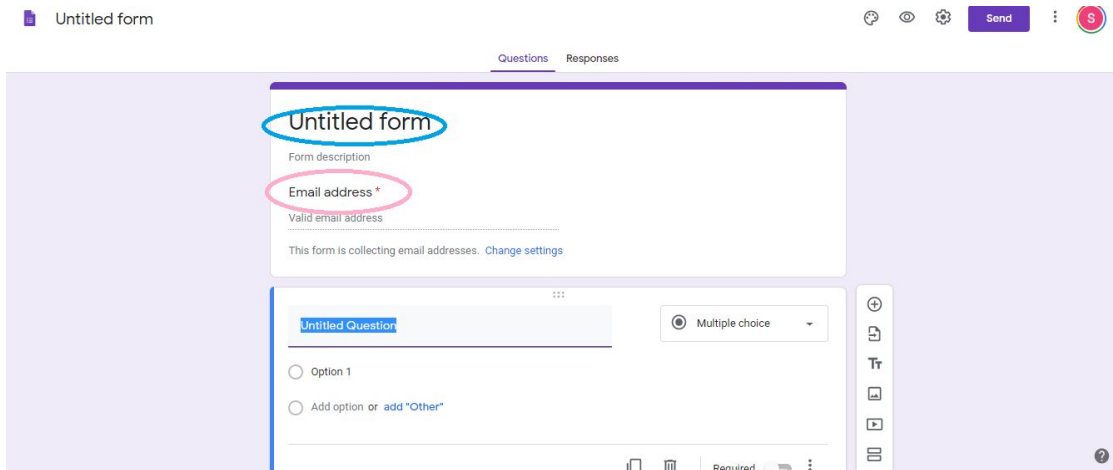


Step 3: Select “Start a new form”



Step 4: Start creating your Online escape room

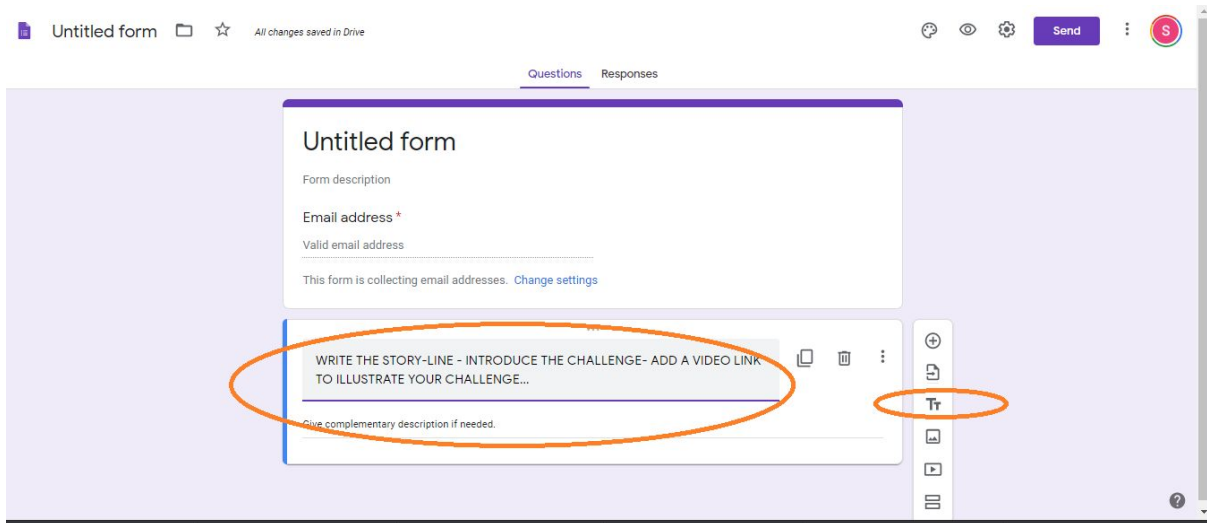
- 1- Name your Online Escape room
- 2- Enter your email address



Step 5: Add a section to introduce your Online escape room storyline

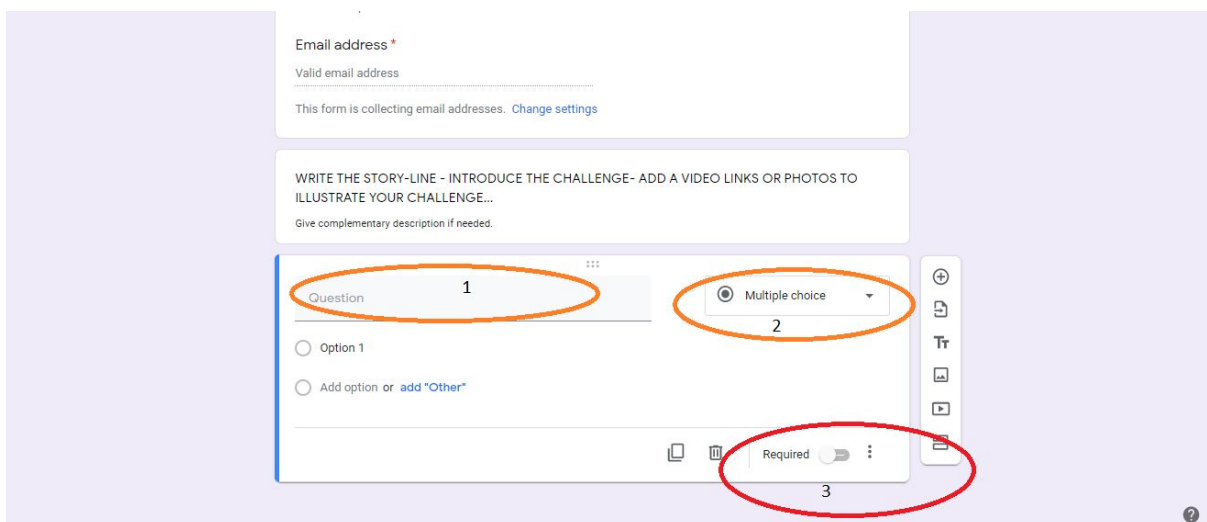
1. Select the “TT” button to add a section
2. Name this section (optional)
3. Write down your story line, explain the challenge so the learners know what to do

4. Include videos, or images, or GIF clicking on the sliding menu at the right-hand side to make it more engaging and fun
5. Play around to find out all possible options
6. You can delete any option at anytime clicking on the “delete” icon

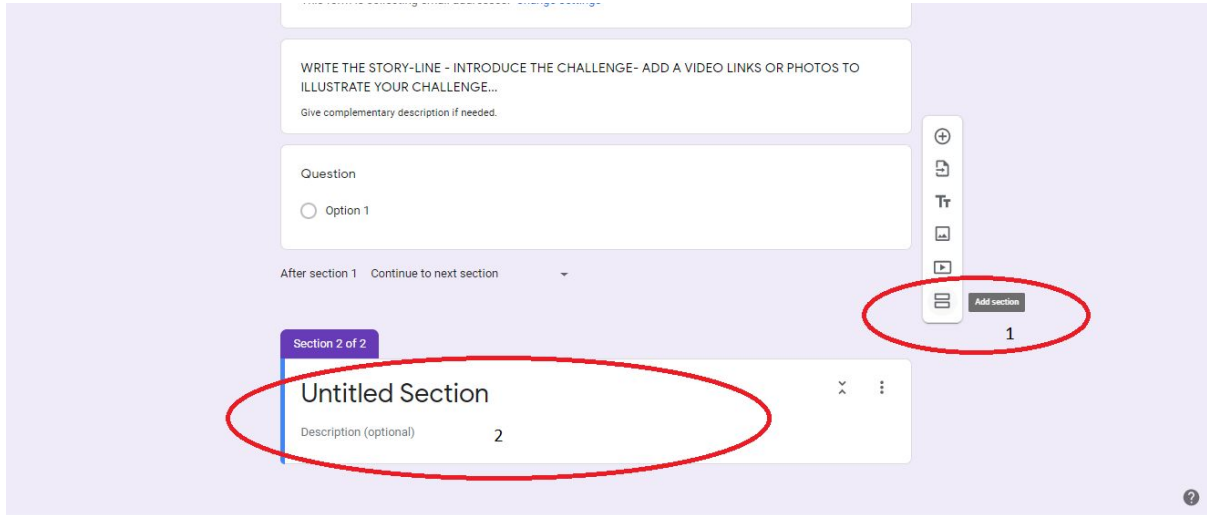


Step 6: Formulate your question

1. Base your question around different types of digital clues (see step by step section above)
2. Select one of the options for collecting answers (short paragraph, multiple choices, checkboxes, short answers...)
3. Indicate if this format is requested or not to move on to the next level



Step 7: Add a new section and build the structure of your challenge by repeating the previous steps.






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Co-funded by the
Erasmus+ Programme
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Project Number: 2019-????????????????