Handbook for the Integration of 21st Century Teaching & Learning in Schools

In association with the Erasmus+ project:
Teaching for Tomorrow (TfT)

Erasmus+

BRIDGE²¹

Teaching for Tomorrow
21st Century Learning in Action

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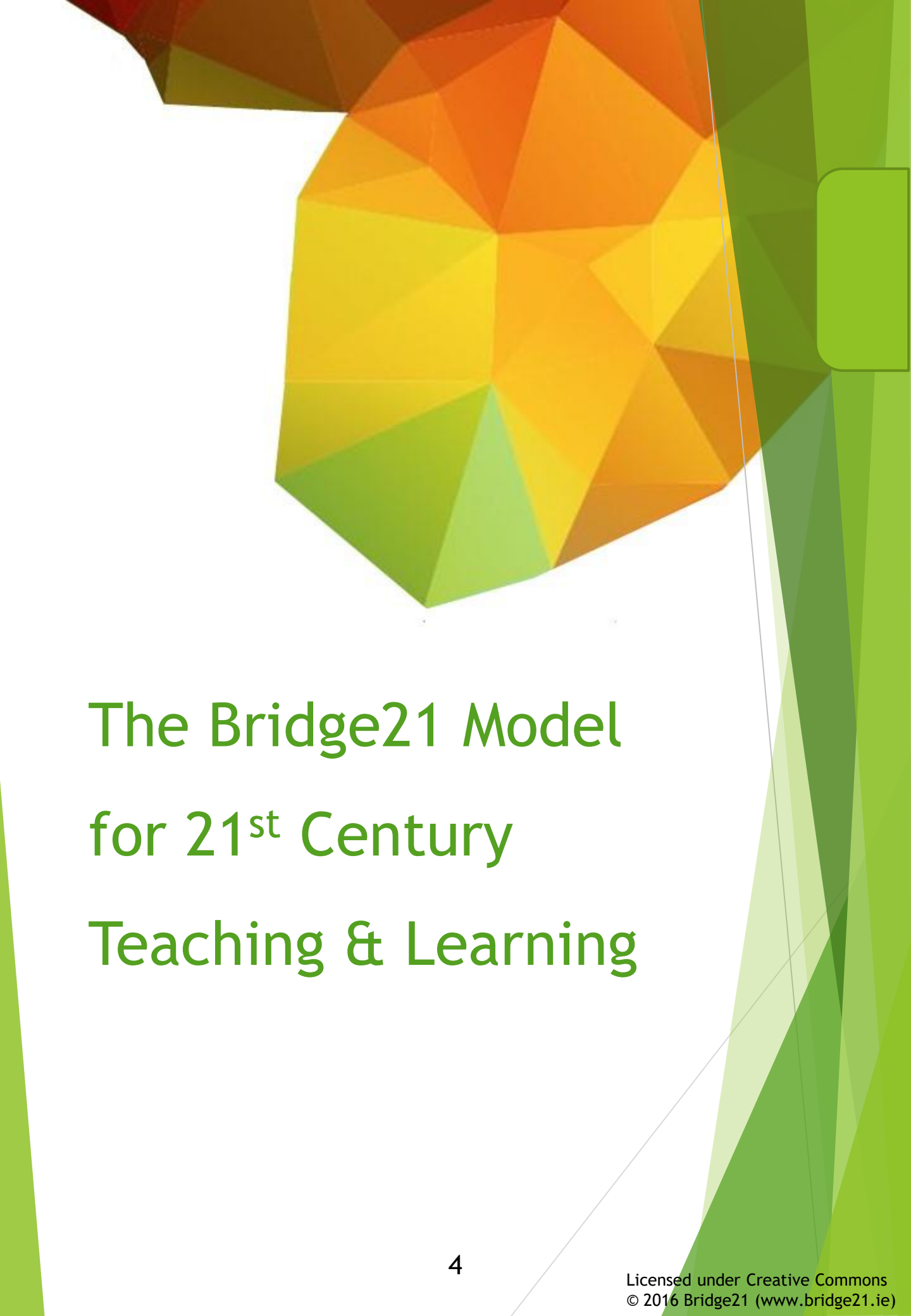
Contents

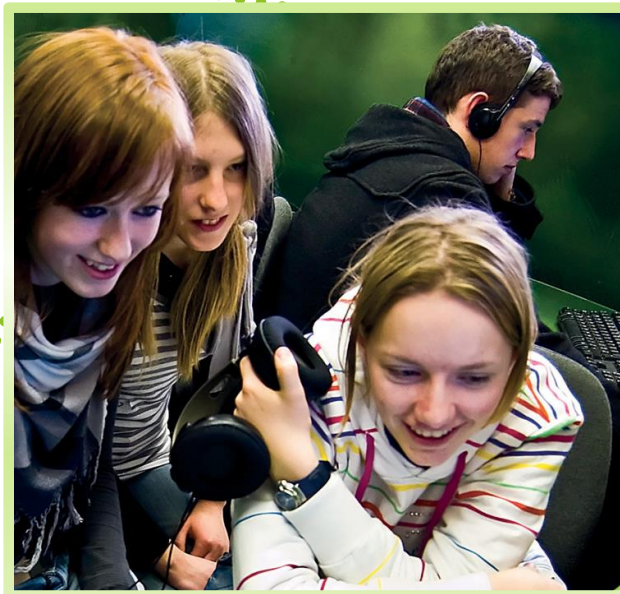# The Bridge21 Model for 21st Century Teaching & Learning

The Bridge21 Approach:
Content and Concepts

"The role of the teacher is to create the conditions for invention, rather than provide ready-made knowledge"

- Seymour Papert (1993)

Teamwork

Technology-mediated

Inquiry-based Learning

Classroom Partnership

Each of these components is common and reasonably well understood as being essential for 21st Century Learning. However, their combination and systematic application, particularly in formal education, is unusual. Bridge21 offers a structured approach for the creation and delivery of activities that embody these fundamental elements.

The Bridge21 Approach: Content and Concepts

A Social Constructivist Approach

In the last three decades there has been a paradigm shift from instruction to construction, from teacher-centred to student-centred teaching.

The teaching methods of the sixties and seventies were characterized by deductive learning and the idea that the learner was a vessel that had to be filled with knowledge by the teacher (the expert).

In contrast, the constructivist approach favours inductive learning, where learners are expected to discover or deduce rules from their own experience and experiments. In this scenario, the teacher functions more as a facilitator who coaches, prompts, and assists the students.

Increasingly constructivist, or 'open,' learning methods have found their way into the classroom, allowing pupils to engage in self-determined, independent and interest-guided learning.

Content and Concepts

Students are capable of achieving more than is generally expected of them, particularly when they are in an environment in which they are encouraged to experiment, think critically, and be creative.

The Bridge21 model encourages the delivery of *subject content* through student-led projects and inquiry. This involves the students in a process of research, analysis and synthesis. They are encouraged to take responsibility for uncovering the knowledge they require in order to develop a suitable solution or artefact, in a well-scaffolded environment.

The cross-curricular nature of Bridge21 activities encourages the development of *conceptual understanding* of the topic under investigation by placing it in a context that has meaning for the participants.

Content and Concepts

▶Classroom Partnership

The Bridge21 pedagogic model looks quite different to the traditional classroom.

- ▶Teachers act as **facilitators** or mentors, and often as co-learners.
- ▶The physical **space** is arranged to support the collaborative nature of the learning. Furniture that can be arranged in a variety of different configurations is ideal.
- ▶**Reflection** is encouraged at various points throughout activities.

▶Teamwork

The Bridge21 model of teamwork involves students of mixed abilities working together to achieve a goal. This model:

- ▶ Encourages young people to become *confident learners*.
- ▶ Improves *problem solving* skills.
- ▶ Raises *personal educational aspirations*.
- ▶ Encourages *peer learning*.

Content and Concepts

▶ Inquiry-based Learning (IBL)

IBL begins with a question or problem, rather than presentation of established facts and rules. It is characterised by active participation of students, and promotes creative engagement with processes such as:

- ▶ **identifying** the problem or area of inquiry,
- ▶ **critiquing** approaches, and distinguishing alternatives,
- ▶ **planning** investigations,
- ▶ searching for information, **researching**, and **justifying** conjectures, and
- ▶ **presenting** coherent arguments.

▶ Technology-mediated Environment

Technology can be low-tech (white-boards, post-its etc.) or high-tech. However, in all cases:

- ▶ Students learn with, rather than about technology.
- ▶ The technology is meaningful and relevant to the particular problem.
- ▶ Technology is shared to encourage collaboration.

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Content and Concepts

➢ Bridge21: Reflection

Reflection is a key component of Bridge21, as it has a variety of purposes. It can be used to improve future activities, in terms of design, organisation and student engagement. It can also be used as a tool for assessment.

*Reflection on the **process***:
- Observe and document the activity: monitor changes over time by taking notes and photos, and discussing the students' experiences with them.
- Use individual and group reflection sheets to gather more information about the students' experiences.

*Reflection on the **learning***:
- Engaging in Socratic questioning with students is a powerful tool to encourage them to reflect on their learning.
- The end of activity presentation provides another opportunity to get the students to reflect on what they have learnt, and on the work of the other teams.
- Whole-group plenary sessions also provide scope for probing the depth of understanding achieved by the students.

Why try the Bridge21 Approach?

There are many ways in which students and educators can benefit from the Bridge21 approach.

Educators will:

☑ Cultivate a student-centred culture of creativity and inquiry.

☑ Become connected to students at a more equal level.

☑ Share in their students' process of discovery and inquiry.

☑ Learn!

Students will:

☑ Be empowered to take ownership of their learning.

☑ Develop the skills of a lifelong learner.

☑ Enhance their skills of communication, collaboration, creativity and critical thinking.

☑ Develop and improve their presentation skills.

☑ Develop a more trusting relationship with their teachers and adults in general.

☑ Become more motivated and engaged in learning.

☑ Recognise meaningful connections between what they learn in the classroom and their experiences outside school.

"They're happier, they're more active, they're working harder – they like it more" – Teacher

"An English project given to them recently… they just did it all themselves. They were able to work on their own and seem very self-motivated" – Teacher

"Learning can be fun instead of boring. In the Bridge 21 you have a choice – either sit back and don't speak up or, and you won't have any fun, or speak up and learn new stuff and enjoy it." - Student

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A Bridge21 approach in the classroom

How to begin
Clear Structure, Creativity, Flexibility

Bridge21 Learning activities have a clear structure, which provides teams with milestones and deadlines to work towards.

Creativity is promoted by encouraging teams to devise different solutions and means of presentations.

Bridge21 activities allow teams the freedom and flexibility to manage their own learning and shape their final work output.

Start Small

1. Learning space

Room layout can have a profound effect on teaching and learning. Changing your learning space is an opportunity – change your own space, barter with other teachers or seek out rooms that allow for a group classroom layout in school. (link to horseshoe, watering hole and cave layouts).

2. Short Sample Activities

What follows are some short samples of exercises that will provide an opportunity to try out teamwork, IBL, and technology.

a. **Teamwork** is a fundamental aspect of 21st Century education. Before experimenting with teamwork, find a task that benefits from the students being in teams. here is one suggestion that should take about 10 minutes:

Example a

Someone has written a sentence containing only five words, the average (or mean) number of letters in each word is 4, but none of the words has four letters. Work together to come up with suggestions for what the sentence might have been?

See what makes this a good activity here

Start Small

b. Technology – low-tech is ok! Why not start by using low-tech resources, and slowly introduce digital technology, while still make the learning more active and engaging.

> *Example b*
>
> *Each team is allocated a different character from a play, novel, or short story. They write a blog post which captures the key points of that character and share it (digitally or otherwise) with the rest of the class.*
>
> *Or, let the groups of students use post-it notes to create a time-line of a the first world war on the classroom wall.*

c. Inquiry-based learning. A collaborative, technology-mediated, active environment, forms the basis of the Teaching for Tomorrow approach. IBL can be used to extend *example c*, above.

> *Example c*
>
> *In order to extend this activity, encourage each group to select the names of three soldiers who died in the war (these can be found on plaques, through family records, or other sources) and research their stories using primary and secondary resources available online (history resources here). Then add their personal details to the timeline.*

… other sample activities can be found here.

3. What then? Reflection

Ask the students to discuss, use reflection sheets, think about it yourself… What worked and what didn't and why?

The Bridge21 Activity Model

An outline of the components found in a full Bridge21 activity are provided below. This should be adapted to your particular activity. The motivation for each step is available here.

1. **Set up -** Useful to get students ready for active learning.
   a. Ice-breaker activities
   b. Team-formation activities

2. **Warm up** - Encourages team bonding and divergent thinking.
   a. Warm up activities

3. **Investigate -** facilitators loosely define the problem area encouraging teams to:
   a. Inquire and research.
   b. Brainstorm and refine the problem.

4. **Plan:**
   a. Develop a task list.
   b. Identify team roles, schedule and resources.

5. **Create** - The main part of the activity
   a. Execute/Create
   b. Review/Evaluate/Test
   c. Reflect.

6. **Team Presentation/Competition**- Provides focus and a deadline

7. **Reflection**
   a. Individual and team reflection
   b. Whole group discussion

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Bridge21: Activity Design Template

The Activity Design Template (ADT) is intended to help practitioners develop and plan Bridge21 lessons.

▶ The ADT was produced in collaboration with educational practitioners, researchers and designers. It provides a structure for the development of 21st Century teaching and learning experiences.

▶ Use of the ADT should support practitioners' identification of an interesting context in which to situate the activity, as well as the particular key skills and learning objectives of the Bridge21-style lesson they are planning.

▶ The ADT can be used in an iterative process, as a template to sketch out ideas for development.

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Activity Design Template

Topic/Theme: _____

Class/Year Group: _____

Subject(s): _____

Outline

What is the **challenge** your students will tackle?	Why is this **meaningful** to the students - what's the hook?	What are the **key ideas** that the students will remember?

Learning Objectives

What **curriculum content** will be addressed? By the end of this activity students *will be able to:*	How are four key **21st Century Skills** addressed? *Creativity* *Communication* *Collaboration* *Critical Thinking*
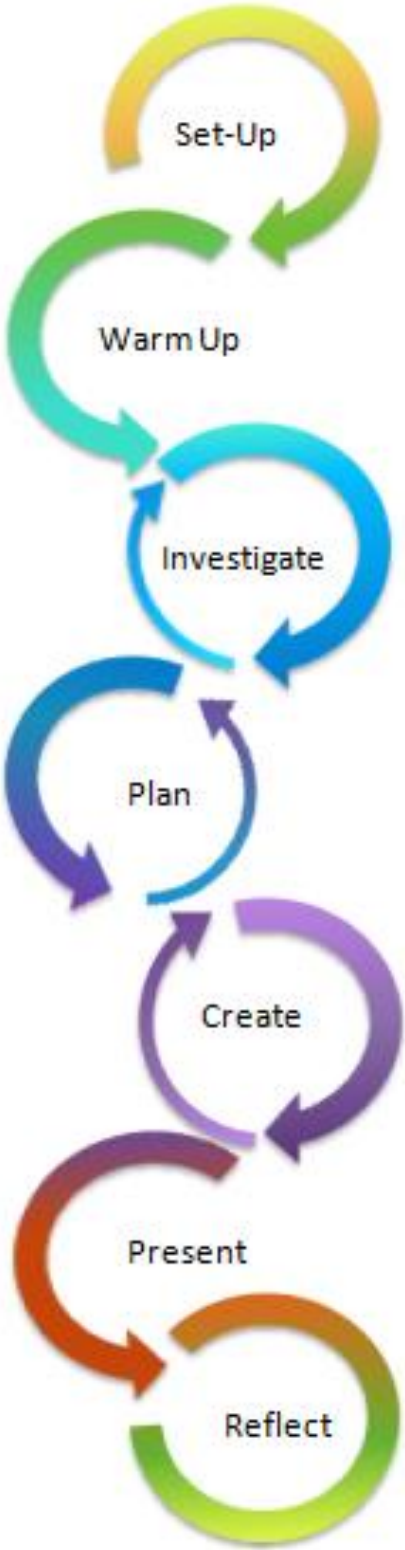
Reflection

How will you know that they are learning?	In what ways will students reflect on progress?

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Activity Design Template

Possible Aspects	Description	Time
Set-Up		
Warm Up		
Investigate		
Plan		
Create		
Present		
Reflect		

Complementary Constructivist Teaching Methods

- Age-Mixed Learning

- Learning through Teaching

- Flipped Classroom

Bridge21 Approach & Teaching Methods

The Bridge21 approach is flexible. It provides structure and scaffolding to support practitioners in using methods that encourage the development of students' 21st century skills.

Because a social constructivist approach underpins the Bridge21 ethos, the approach aligns well with several constructivist teaching methods. These teaching methods can complement and enhance the learning process.

Teaching method choices are frequently rooted in an individual teacher's own personality and beliefs. Yet, it is recommended that all available teaching methods (lecture/teacher-led instruction, individual work, pair work and group work) should be considered. Choices should be made in relation to learning objective and content and not just for their own sake (Meyer, 2007).

Age-mixed learning:
What is it?

Age-mixed learning is an approach that involves having a mix of ages in one classroom, leading to peer learning and a pool of more able others. The primary value of age-mixed learning is the flexibility it provides to students whose cognitive growth is in a series of sudden spurts rather than a smooth, linear progression. By serving a range of students with a large chronological-age span, the norm becomes a wide range of abilities.

This approach requires high levels of differentiation and variation of teaching-styles in order to maintain learning for all students. It forces teachers to move away from the teacher-centred approach and opens up classes to partner and group-work

Age-mixed learning:
How can you try it?

Why might you try it?

▶ Children learn from their peers

▶ It provides flexibility and opportunities for students of different abilities.

▶ Opportunities for more able others to take higher levels of responsibility.

▶ Opportunities for students to take on different roles in the classroom, such as role model or mentor.

▶ More able students can demonstrate or model good practice and specific skills

When might you try it with Bridge21?

▶ You can use it with a project that is theme-based, and not based only on previously learned content.

▶ It can be used as a revision period for older students, while introducing new material to younger students.

Learning through Teaching: What is it?

Learning through teaching involves the students in the generation and use of their own didactic materials. They need to thoroughly research the content that they want to explain, and think of appropriate ways to present their findings. The teacher acts as their assistant, helping them to achieve their goals and giving them feedback on their progress.

This method of learning can be a very powerful motivational tool, particularly if the "learners" who will be taught by the students have relevance for them – they might be other students in the school, parents who are unfamiliar with the content, or visitors to the school.

Learning through Teaching: How can you try it?

Why might you try it?

▶ It encourages students to be more aware of their own approach to learning, as well as that of others, through the process of didactic reduction within a team.

▶ This can provide an opportunity for teachers to help a particular group of students to deepen their understanding.

▶ The teacher has time to observe and assess students understanding

▶ It is motivating for the students

▶ It can lead to deeper understanding and better recall, as if the student teaches something, they tend to remember it.

When might you try it with Bridge21?

▶ This is an effective method for the revision of core concepts

▶ Older students might teach younger students some fundamental subject information.

▶ Language students could teach parents/novices some basic concepts

Flipped Classroom: What is it?

The "Flipped classroom" is a popular educational model in which the traditional way of teaching - teacher as locus of information and learning - is substituted by pupils watching instructional videos outside of class time, and reinforcing the new material with the teacher's or other pupils' help.
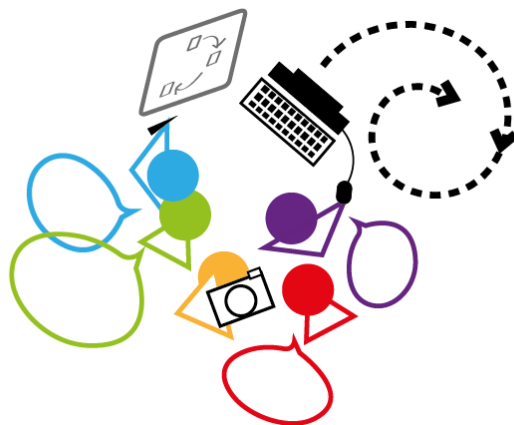
There are many advantages of this model. Firstly, every pupil can pause or restart the video as often as they like, which enables them to work at their own pace. Secondly, having the content delivered out of class time frees up the students to do the more creative, practical, and communicative tasks with in school, while the teacher monitors and supports them.

Flipped Classroom: How can you try it?

How should you start**?**

- ▶ Teachers who want to use this model should first watch some videos themselves to familiarise themselves with existing videos and how they are structured.

- ▶ Then, they might shoot a video themselves to learn about the challenges their students will face. The editing and final completion of these products depend on the school's equipment and the teacher's skills.

- ▶ Finally, they should start with short, simple videos in order to assess their students' understanding of the model and how it works.

When might you try it with Bridge21?

This method is useful when the Bridge21 activity requires that certain content be covered in advance. A useful technique to use is the "Jigsaw" technique, in which different students in each team are assigned aspects of a topic to cover. Group members then join with members of other groups assigned the same piece of information, and research and/or share ideas about the topic. Students then return to their original groups to try to "piece together" a clear picture of the topic.

Assessing 21C Skills

- Overview

- Types of Assessment

- Guiding Questions

- Assessment in the
  Bridge21 model

- Sample Rubrics

Assessing 21C Skills

We assess what we see and experience in our environment all the time. However, when pupils' knowledge is to be assessed, it must be done in a deliberate and educational way.

Within the Bridge21 approach, it is seen as fundamental that students master their own learning development: the more they are involved in the assessment process, the more relevant the goal appears. In this way, assessment becomes a natural part of the learning process and not just a terminal grade.

Rubrics can be useful tools for assessing students' skill development. However, in order to be fully effective, rubrics should be made available to the students and efforts should be made to ensure that the students fully understand what is expected of them. If the goal and success criteria are not well-defined the assessment will appear unclear and arbitrary.
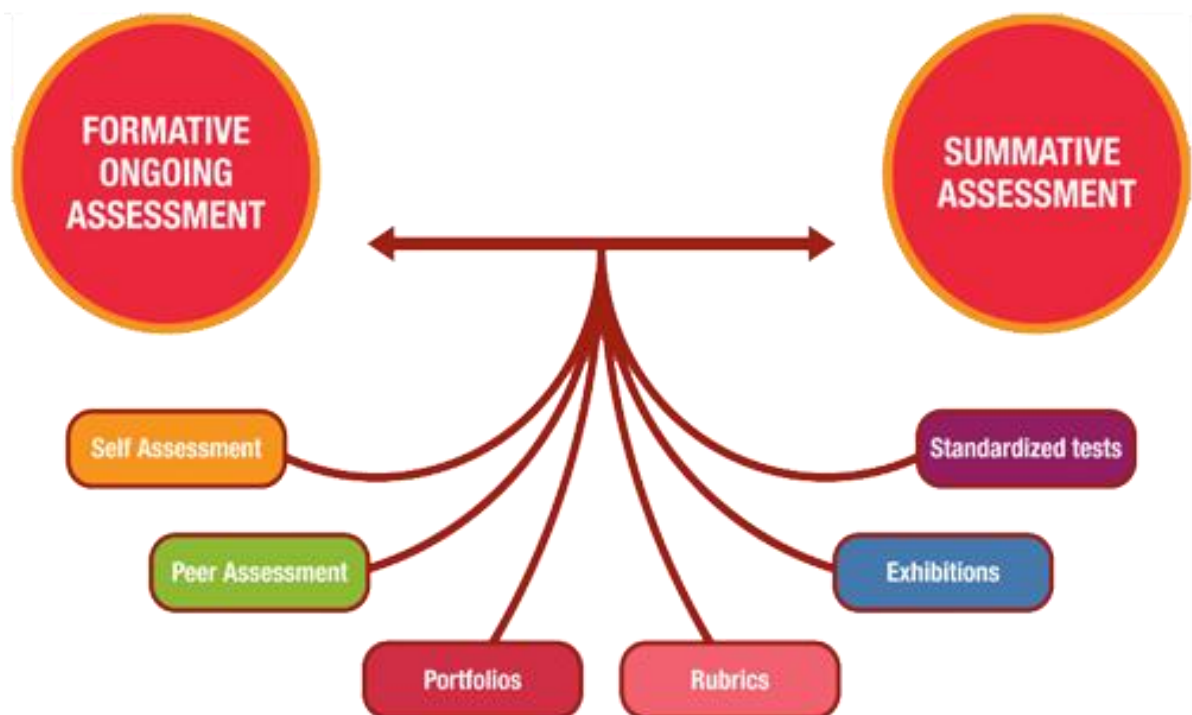
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Types of Assessment

Summative assessment – Assessment *of* Learning
Summative assessment is a form of assessment that sums up a person's accumulated knowledge in a specific moment. The person being assessed is given no feedback that explains what is wrong or what he or she could have done differently.

Formative assessment – Assessment *for* Learning
In formative assessment the goals/aims of education are made clear in the beginning of the learning process. The person that is being assessed is given feedback on his or her result during the working process so that the student always knows the next step towards the goal.

FORMATIVE ONGOING ASSESSMENT

SUMMATIVE ASSESSMENT

Self Assessment

Peer Assessment

Portfolios

Rubrics

Standardized tests

Exhibitions

Assessment: Teacher vs Student Perspective

Teachers and students have different areas of focus when it comes to assessment, but the following questions can help each to monitor his/her progress.

Teacher perspective

- Are all students active in their learning?
- Am I aware of all students' learning process?
- Are they learning what was intended?
- How do I know that?
- How do I use this information?
- What do I need to change in my teaching?

Student perspective

- What are my goals?
- Am I making progress?
- Do I know what is required?
- What are my learning styles?
- What are my strengths and weaknesses?
- What do I need to improve?
- How do I achieve the improvement?
- What should I focus on the next time?

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Five Key Questions in Assessment

1. What shall the students learn?

Students need to understand the purpose of teaching and feel part of it. The objectives must be clear and understandable for the students.

2. What do they already know?

Teachers should adapt their teaching methods based on their students' knowledge and abilities.

3. What should the student do to reach the next level in learning?

Teachers, and students themselves, can provide feedback that can encourage learning. This feedback can help students to realise what is required of them to reach their goal. It can also strengthen the dialogue between teachers and students.

Discussion and evaluation of authentic student work of different qualities can help students to understand what is expected of them.

4. How can the students support each other in the learning process?

When students assess each other's work and give feedback, it can help them to become more familiar with different qualities of work. Their ability to self-assess can be strengthened through this process.

5. How can the students assess and be responsible for the learning process?

Learning how to assess their own work and take responsibility for their learning can help students to achieve their goals. Engaging with formative assessment processes, peer-assessment, and learning plans can all contribute to this process.

In Bridge21, students take responsibility for their learning by collaboratively presenting their work at the end of an activity.

Assessment of 21C Skills in the Bridge21 Model

How students are assessed in Bridge21 depends on the focus of the activity. In many cases, rubrics are useful.

One method for constructing rubrics is to use 'levels of requirements' (as is common in the assessment system in Sweden). This involves defining the levels of achievement that students may reach. For Bridge21 activities, four possible levels can be considered:

1. Level 1 describes a level of achievement of the skill that is yet to meet expectations.

2. Level 2 describes the most basic level of expected achievement of the skill in question.

3. Level 3 describes the expected level of student achievement of the skill in question. In order to achieve level 3, all aspects of level 2 must have been accomplished.

4. Level 4 describes above average levels of expected achievement of the skill in question.

In order to provide a detailed example of such a rubric, the next section focuses on assessment of *teamwork*, one of the most fundamental aspects of the Bridge21 approach.

Assessing Teamwork in Bridge21

Teamwork in Bridge21

For teamwork to be successful, well-defined goals and success criteria are crucial: It is important that each team is working towards a common, well-understood goal.

Teamwork in Bridge21 consists of five main aspects.

▶ **Planning**

Good teamwork starts with good conditions. It is essential that everyone in the team is aware of team guidelines. For example:

> ▶ Team roles: each individual should be aware of the tasks and roles that they have been assigned.

> ▶ Action Plan: the team should devise a plan that they will put into action in order to achieve their goal. Deadlines should be explicit.

▶ **Individual and shared responsibility**

The team members rely on each other's success. The individual contribution will be assessed as well as the group project.

▶ **Communication**

Students need to listen to each other, interact, discuss, and contribute meaningfully to the group.

▶ **Collaboration**

Team members work together to contribute to the overall goal of the group, thus helping the group to achieve aim of the activity.

▶ **Social Skills**

> ▶ Students should be polite, respectful and supportive of each other.

> ▶ It is important that everyone takes turns, and that the members in the group help and encourage each other

> ▶ Students must compromise in order to reach consensus.

Bridge21 Teamwork Rubric

Skill/Aim	Level 1	Level 2	Level 3	Level 4
Team planning: Team members devise a plan for their work, including assigning roles and agreeing on deadlines.	The team has no draft for their work. Members are seldom punctual with work responsibilities and follow through on few assigned tasks	The team has a draft for their work. Members are sometimes punctual with work responsibilities and follow through on some assigned tasks	The team has a clear plan for their work. Members are usually punctual with work responsibilities and follow through on most assigned tasks. Responsibility for tasks is evenly shared	The team has a clear and detailed plan for their work. Members are consistently punctual with work responsibilities and follow through on assigned tasks. Responsibility for tasks is evenly shared
Positive interdependence: Members of a group who share common goals recognise that working together is necessary for individual and collective success.	Unbalanced division of tasks amongst team members. Not all members do something, and no collaboration. Team members do not support the efforts of the group as a whole whole	Division of tasks amongst all team members. All members do something, but no collaboration. Team members rarely support the efforts of the group as a whole	Division of tasks amongst team members. All members do something, with some level of collaboration, usually encouraging and supporting the efforts of the group as a whole	Participation of all the team members working together for individual and collective benefit. All members effectively encouraging and supporting the efforts of the group as a whole
Communication: Communication involves the exchange of information between one team member and other members.	Negative attitude in responding to peers. Team members seldom listen, interact, discuss, and contribute to the group	Positive attitude in responding to peers. Team members sometimes listen, interact, discuss, and contribute to the group	Positive attitude in responding to peers. Some contribution to advancing the topic: Team members usually listen, interact, discuss, and contribute to the group	Positive attitude in responding to peers. Good contribution to advancing the topic: All members consistently and respectfully listen, interact, discuss, and contribute to the group, suggesting and responding to ideas, adding new information, and asking for clarification.
Collaboration: Collaboration is process of two or more people working together in a coordinated, synchronous activity.	Team members seldom work together to contribute to the overall goal of the group, and do little to help the group to achieve the aim of the activity	Team members sometimes work together to contribute to the overall goal of the group, thereby helping the group to achieve the aim of the activity	Team members usually work together to contribute to the overall goal of the group, thereby helping the group to achieve the aim of the activity	Team members always work together to contribute to the overall goal of the group through listening, interacting, discussing, and contributing, thus, helping the group to achieve aim of the activity
Social skills: A social skill is any skill facilitating interaction and communication with others	Team members are seldom polite, respectful and supportive, in their interactions. Compromise is rarely achieved.	Team members are sometimes polite, respectful and supportive, in their interactions. Some compromise is achieved.	Team members are usually polite, respectful and supportive, in their interactions. Compromise is usually achieved.	All team members are consistently polite, respectful and supportive, in their interactions. Compromise is always achieved.

Developing a Community of Practice

- Overview

- Getting Started

- Developing the practice

- Resources: Theory of Change

What is a "Community of Practice"?

▶ A professional learning community that leverages community-type action/interactions/strategies to define a common purpose and direction for whole school change

▶ A vehicle for collaboration, communication and shared ownership that allows teachers to use 21C skills in their professional life, both in and out of the classroom.

▶ A group of teachers who plan and reflect together in subject/mixed groups, where co-teaching and observation practices are encouraged

Why create a community of practice?

- To develop a more value-based, student-centred and up-to-date model of education within the school
- To improve and stay current in teaching practices and approaches
- To lead by example: to model, for the students, practices of collaboration and teamwork and other 21C skills

- To improve engagement and motivation of the members within the school organization
- To meet the expectations of the local community – students, parents, and other education stakeholders

Requirements for success

▶ Clear goals and a common sense of purpose

▶ A core group of teachers and management leading the whole school

▶ Strong and supportive leadership structures

▶ Regular meetings: teachers, management, inter-departmental and year-group teams

▶ Core members leading continuous professional development(CPD) afternoons/days

▶ Core members acting as role-models for colleagues and students

▶ Teachers sharing experiences online

Supporting a Community of Practice

▶ Top-down – Management

  ▶ Find time and schedule "community" meetings in which you can introduce the ideas and discuss what and how things can be achieved.

  ▶ Encourage teachers to participate and learn from other teachers

  ▶ Provide an online space for sharing experiences

▶ Bottom-up – Teachers

  ▶ At your community meetings, you can advise each other and start promoting such lessons to the others.

  ▶ Encourage your colleagues to visit each other's lessons to learn from, and give advice to, each other

  ▶ Encourage co-creation of lesson plans, resources, etc.

Getting Started

▶ **B**uild on good practice that already exists
- Identify collective values and principles
- Ensure there is quality leadership and strong goals

▶ **Define the aim of the project/community**
- For example, "we want to…"
    - be up-to-date
    - shift of focus from individual academic achievement to collaborative teamwork
    - focus on inclusive education
    - develop student-centred learning

▶ Clarify **why** change is required
- For example, "we want to…"
    - create a motivating, engaging and less-stressful environment
    - help everyone achieve their full potential
    - develop continuous learning and innovation for all

How to Start – Individually

▶ Get acquainted with the material offered in the Bridge21 Handbook / TFT webpage.

▶ Try to use some elements of the model in your own lessons.

▶ Consult and revise the handbook material again.

▶ Analyse what worked well and what elements need to be changed.

▶ Try different elements of the model several times.

▶ Ask students for feedback at the end of the lesson (what they would do differently to improve the results).

▶ Try all the elements during one day or week to experience the model.

▶ Improve your skills, concentrate your attention on more details (e.g. assessment, different learning styles, the usage of technology etc.).

▶ Try to have such lessons regularly.

Continuing as a Team of Teachers

▶ Find time for cooperating meetings with your colleagues (on average, every one-two months), where you can introduce ideas and discuss how they can be done.

▶ Demonstrate and model the method for your colleagues

▶ Encourage your colleagues to visit each other's lessons to learn from and give advice to each other as TFT lessons can be used in every school subject.

▶ Use your cooperating meetings to review and discuss results of the lessons, give advice to each other and start promoting such lessons to the others.

▶ Ask for support from your school administration to encourage other teachers to participate

▶ All participating teachers should provide feedback on either the whole method or elements of it.

▶ Experienced teachers can start motivating the ones who are uncertain about using the new methods.

▶ Organise a project day for your students where the whole model is followed during one day; it can be one class of students experiencing the method in one subject or in different subjects.
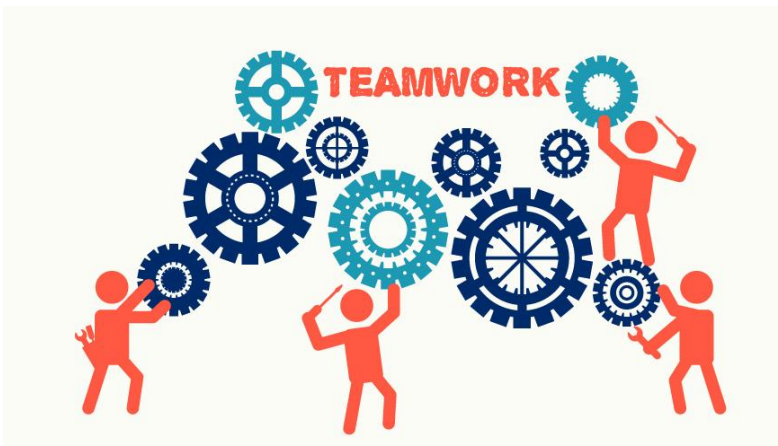
The Impact

Through engagement in a community of practice, schools can experience several positive changes:

- ▶ A defined and shared mission and vision for the school

- ▶ The establishment of team meetings in year groups and/or by subjects

- ▶ Whole school continuous professional development opportunities

- ▶ More inclusive education

- ▶ A shift of focus from individual academic achievement to collaborative teamwork
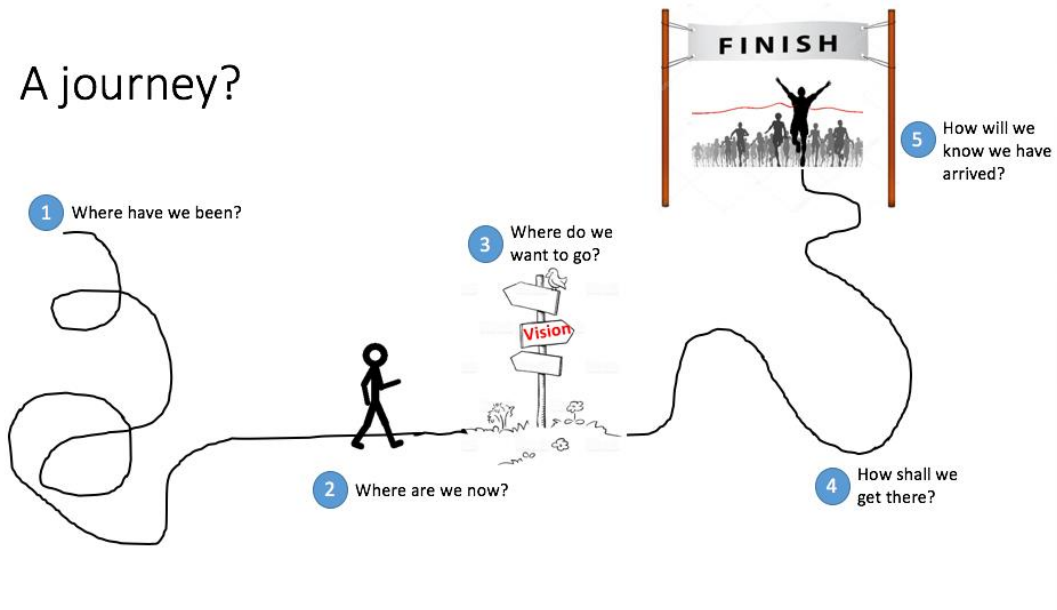
Theory of Change – What is it?

Completing a theory of change exercise is one useful activity a school/group of teachers can do to begin to develop a community of practice.

A "theory of change is a theory-based approach to planning, implementing or evaluating change at an individual, organisational or community level... A theory of change articulates explicitly how a project or initiative is intended to achieve outcomes through actions, while taking into account its context" (Laing & Todd, 2015, p. 3).

A theory of change exercise can help describe or illustrate an organisation's or project's **goals** and its **change** process. It defines all of the necessary and sufficient conditions, or **building blocks**, and how they interconnect to achieve the long-term goals.

Theory of Change: Guiding Questions

A journey?

1. Where have we been?

2. Where are we now?

3. Where do we want to go?

Vision

4. How shall we get there?

5. How will we know we have arrived?

FINISH

1. What do you hope to change *in your context*, through engagement in a community of practice?
- Come up with a problem/change statement
- What is the current situation with regards to this?

2. Who are the stakeholders and beneficiaries?
- Who needs to change in order to address the problem?
- Who will you need to work with and influence?

3. What is the endpoint?
- What might it look like if the problem were solved? What do you want to see change?
- How will you know you have been successful?

4. How can a community of practice (CoP) help achieve these goals?

- In what ways do you hope participation in a CoP can help?
- What do you already do that we can learn from?

5. Barriers

- What are the negative factors that might be barriers?
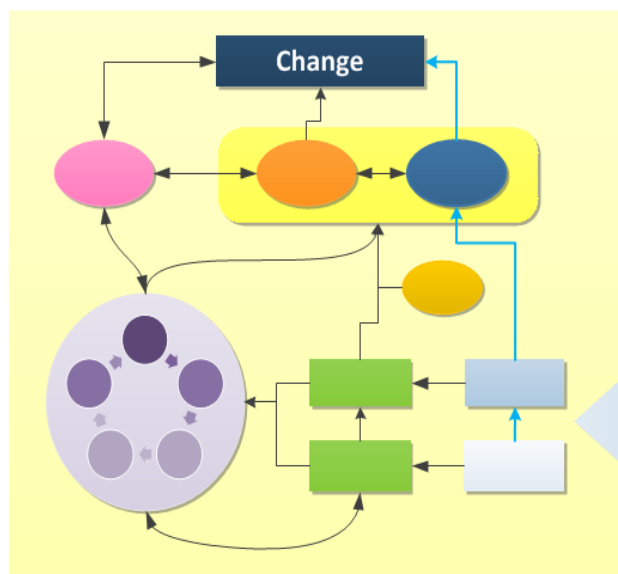- What action can you take to mitigate against these potential barriers?

A journey?

FINISH

1. Where have we been?

3. Where do we want to go?

Vision

2. Where are we now?

5. How will we know we have arrived?

4. How shall we get there?

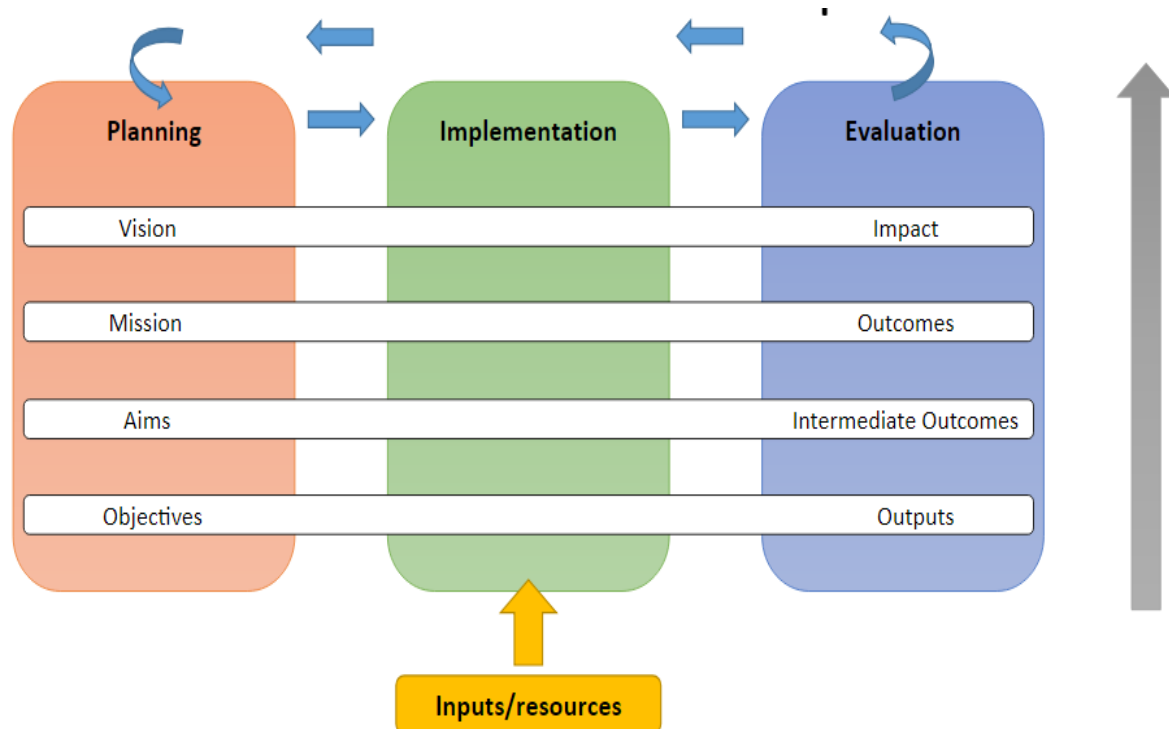# Theory of Change: Templates for Planning

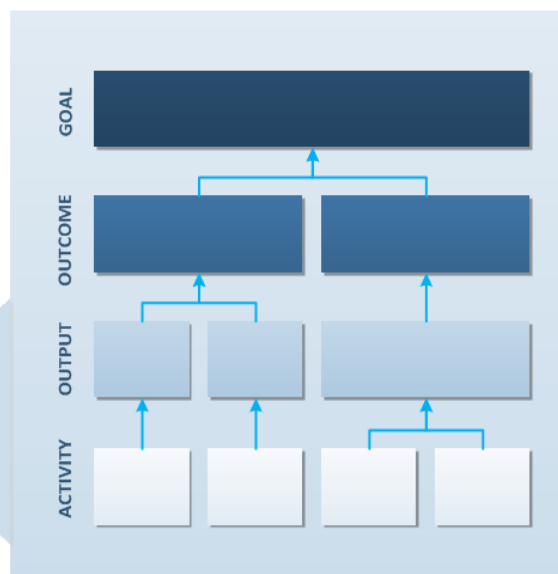## Theory of Change

Shows the big picture with all possible pathways – messy and complex

Logical Framework

Shows just the pathway that your program deals with – neat and tidy

GOAL
OUTCOME
OUTPUT
ACTIVITY

Planning	Implementation	Evaluation
Vision		Impact
Mission		Outcomes
Aims		Intermediate Outcomes
Objectives		Outputs

Inputs/resources

Teaching Resources

- **Sample Lesson Plans & Accompanying materials**

- **Assessment Rubrics**

- **Reflection resources**

Find additional lesson plans & materials at

http://tft-project.eu/

Sample Lesson Plan 1 – Dolly Diving

Topic/Theme: Dolly Diving

Class/Year Group: Transition Year (Year 10)

Subject(s):   Mathematics

Outline

What is the challenge your students will tackle?

Using a doll, rubber bands, and some free software, calculate how many bands it would take to give the doll an exhilarating, but safe jump from a height?

Why is this meaningful to the students – what's the hook?

Students love to throw things out of windows! It is active and fun.

What are the key ideas that the students will remember?

Links between mathematical representations. Difference between correlation and causality. What a function *is*! Extrapolation.

Learning Objectives

What curriculum content will be addressed?

Linear functions, Collection, representation and analysis of data, correlation, line of best fit, extrapolation.

By the end of the activity students will be able to:

Understand that functions represent a relationship between variables; gather data and represent them in different ways; use those data to extrapolate (make predictions); understand correlation and causality…

How are the 4 key 21st Century Skills addressed?

- *Creativity*: Students are required to think about the problem, and come up with a creative solution.
- *Communication*: Students need to clearly communicate their rationale for the steps they have taken
- *Collaboration*: Students work in teams to solve the problem.
- *Critical Thinking*: Students need to evaluate the approaches as well as their results, before the competition.
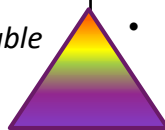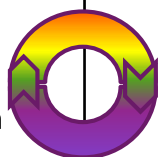
Reflection

How will you know what they are learning?
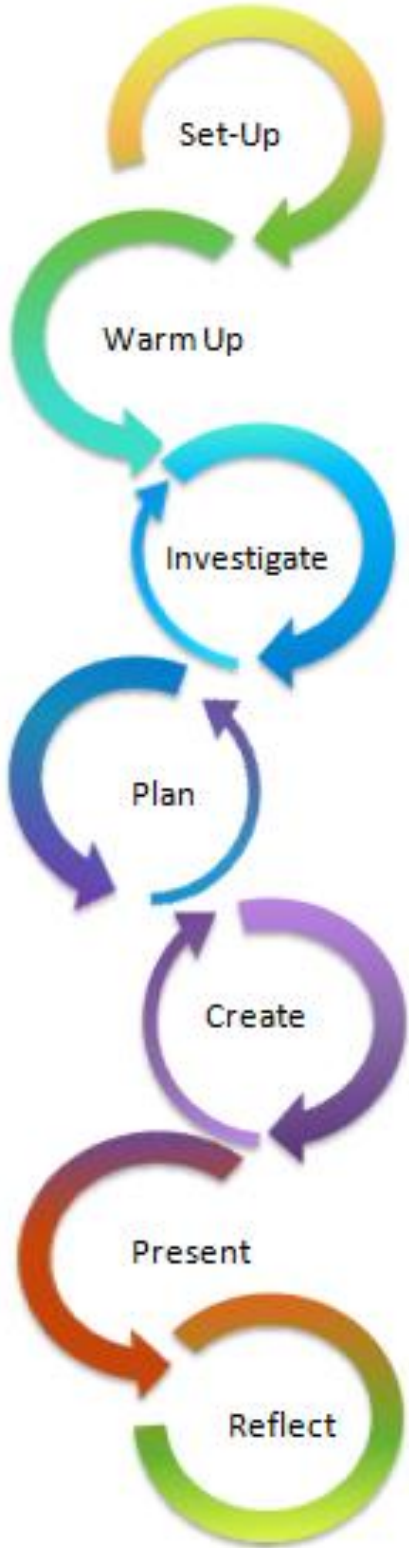
This activity has a good roadmap. The facilitator will be able to ensure the students are on track through regular team lead meetings, as well as observation. Questions in plenary will be used to reflect on learning.

In what ways will students reflect on progress?

Students will reflect through interactions with the facilitators, as well as peer-to-peer interactions within and outside their groups. The final plenary session will allow them to reflect fully on the content of the activity.

Sample Lesson Plan 1 – Dolly Diving

Possible Aspects	Description	Time
	Warm up (skip set-up and team formation if in teams): How many €2 coins would it take to fill this room? With 2 min discussion answers and approaches.	10 mins
	Investigate: present the problem and ask the teams to brainstorm approaches.	5 mins
	Planning: Plenary discussion about possible approaches and their merits. Discuss available technology. Allow the teams time to plan and divide tasks.	10/15 mins
	Create: Iterative phase in which the teams gather data using Kinovea, and then find ways to represent the data using a spreadsheet. The mathematics will emerge throughout this process. The spreadsheet will enable the generation of a function to represent the relationship between bands and distance.	1 - 1.5 hours
	Create: teams will need to calculate the distance the doll is to drop, using the clinometer App in MobiMaths.	10 mins
	Present: A competition in which the teams drop the dolls from the height, to see whose calculations are most accurate.	10 mins
	Reflect: All groups reflect on their calculations. In a final plenary, groups discuss their approaches. The facilitator leads a discussion around the mathematics.	30 mins

The "Possible Aspects" column contains a cyclic diagram with the following stages: Set-Up, Warm Up, Investigate, Plan, Create, Present, Reflect.

Guide: How to use the Software

Dolly Diving Software

Kinovea

- Import your videos onto the laptop.
- Launch Kinovea and open the first video.
- Use the line tool to indicate a distance you know the length of. Right click on the line and calibrate measure to known distance.
- Use the line tool to measure the maximum vertical distance of each jump.

Excel

- Open a spreadsheet and create a table with columns relating to the number of bands and the distance jumped.
- Discuss the best type of graph to represent the data collected.
- Insert an appropriate graph, making sure that the axes are correctly labelled.
- Can you use the spreadsheet to display a "line of best fit"?
- Can you generate/display the equation of this line?
- Using the data you have gathered, how many rubber bands would it take to give the doll an exhilarating, but safe jump from a first floor window?
- Test your hypothesis!

Sample Lesson Plan 2 – Radio Show

Topic/Theme: Radio Show Project

Class/Year Group: Year 8 – Year 12 (ages 14 - 18)

Subject(s): Media Studies, Languages or Subject Specific

Outline

What is the challenge your students will tackle?

Student groups will produce a 5 minute radio show.

Why is this meaningful to the students – what's the hook?

Students are generally familiar with podcasts and radio shows. Here they get to create one about something that interests them.

What are the key ideas that the students will remember?

Student will develop a sense of what it is like to produce work under pressure. They will develop a sense of time management

Learning Objectives
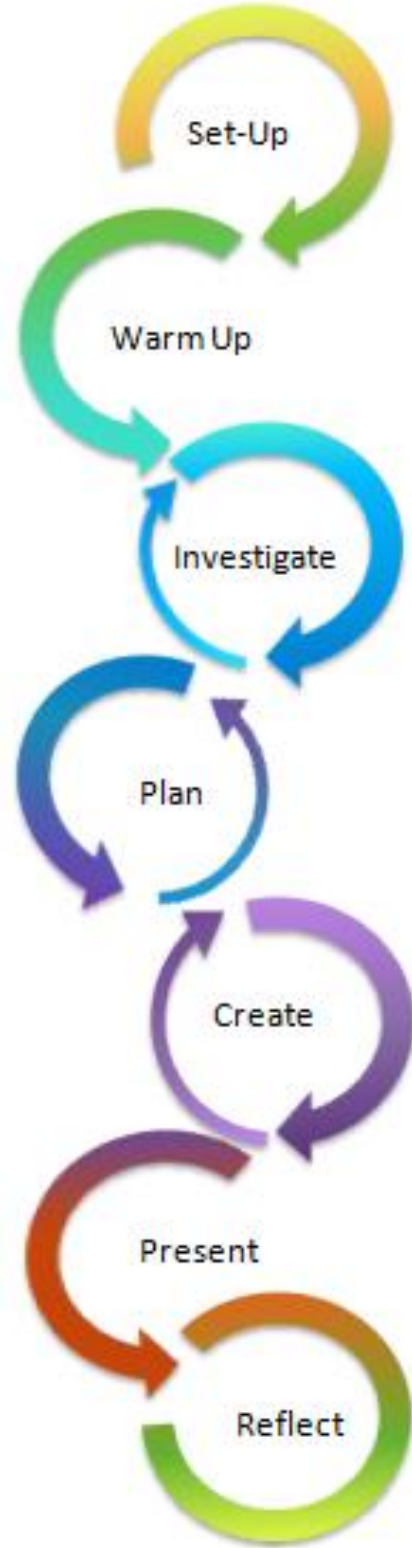
What curriculum content will be addressed?

Depending on subject choice but in general terms scripting and creative writing.

By the end of the activity students will be able to:

- Use Audacity or similar sound recording software to record, edit, mix and produce a short radio show.
- Plan and script segments of show based on
- ideas, information found online and public interviews.

How are the 4 key 21st Century Skills addressed?

- *Creativity*: Brainstorming to scope, plan and script a radio show.
- *Communication*: Interview skills for conducting voxpop with the public.
- *Collaboration*: While each student is responsible for a different segment of the show, they must be consistent.
- *Critical Thinking*: Finding solutions to sound editing issues; evaluating information sources

Reflection

How will you know what they are learning?

Through observation of student activity and engagement, and by analysis of their finished radio show products.

In what ways will students reflect on progress?

Students will give an oral Presentation to group before playing their radio show. This gives the students an opportunity to reflect on their progress.

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Sample Lesson Plan 2 – Radio Show

Possible Aspects	Description	Time
Set-Up	**Set-up:** Introduction to the day and team formation.	10 -15 mins
Warm Up	**Warm up**: Teams Brainstorm ways to communicate on whiteboard; then each team lists three pros and cons for two methods of communication	25 mins
Investigate	**Warm up**: Teams use whiteboards to brainstorm recent news stories, or stories of the year. Each team choses a story, investigates it using primary and secondary online sources, and presents the story to whole group, using one photo but no slides.	40 mins
Plan	**Investigate**: Introduce and explain the main task. Using the Radio Show project template (in student resources) teams brainstorm ideas for a radio show.	10 mins
Create	**Plan**: Teams come up with a plan and assign roles.	10 mins
Present	**Create**: Teams working on task, as described in the project template.	2 – 2.5 hours
Reflect	**Present**: Each team presents an oral reflection on the process (3 mins), as well as their radio show (5 mins).	~ 1 hour, depending on the number of teams.
	Reflect: General, whole group reflection, focusing on what was learned and where the challenges lay.	30 mins

Directions for Students

(Radio Show Lesson)

Your Main task for today is to research, record and produce a **5 minute** radio show aimed at other Transition Year Students.
You will be using microphones, a handheld recording device and sound files found on the internet.

Your show **MUST HAVE:**

- A one minute report on any topic/current affair (check with other teams) in which you cite a primary source and any others.

- A jingle for your show (Joeeeeeeeee Dufffffy.. etc..).

- A short weather report for the next two days.

- A public Vox-Pop (Ask the public a question).

- A review of a book, movie, tvshow (no spoilers though!).

- A creative use of music (see below).

- An M.C that links the parts of the show together "and here's Mike with the news etc.."

Your show **MUST NOT HAVE:**

- Any music clips over 10seconds long. If you can think of creative ways to add in short music clips like "guess that sound" or "top ten metal songs in one minute" then that's acceptable..but no full songs (We mean it!!!).

- Other things your show could have...

- Lonely Hearts Adverts

- Psychic/Horoscopes

- A quiz/competition

- Mystery Noise

- Pet's corner

- Agony aunt

Directions for Students

Sample Radio Show Plan

Time (minutes)	Segment	Talking
00.00-00.10	Jingle	All
00.10-00.40	Weather Report	Martin King
00.40-01.40	Movie Review	Movie-Mike
01.40-02.40	Agony Aunt	Ask Alice
02.40-03.40	Jingle	All
03.40-04.40	Special Report	Ron Burgundy
04.40-05.00	Top ten hits	DJ Bridge21
05.00-05.10	Jingle	All

Student Companion Worksheet

Radio Show Planning Template

Time (minutes)	Segment	Talking

Sample Presentation Assessment Rubric

Category	Scoring Criteria	Total Points	Score
Organization (15 points)	The presentation is appropriate for the topic and audience.	5	
	Information is presented in an order that makes sense.	5	
	Team members state clearly say where they got their information.	5	
Content (45 points)	Has a good introduction that gets your attention, lays out the problem well, and lets you know where the presentation is going.	5	
	Language is easy to understand.	5	
	Presentation contains accurate information.	10	
	Material included is relevant to the topic.	10	
	The presentation has a strong clear message.	10	
	The presentation offers a potential solution.	5	
Presentation (40 points)	Each Speaker maintains good eye contact with the audience and is appropriately animated (e.g., gestures, moving around, etc.).	5	
	Speakers use a clear, audible voice.	5	
	Each member of the team contributes to the presentation.	10	
	Visual aids are well prepared, appropriate, and not distracting.	5	
	Length of presentation is within the assigned time limits.	5	
	Information was well communicated.	10	
	Total Points	**100**	
Score			

Individual Reflection Sheet

Has the workshop impacted on you in any of the following ways?

	Never	Only now & again	Sometimes	Nearly always	Always
I enjoyed working with my team					
I trusted my teammates					
I had a clear role to play in my team					
I helped my teammates when they needed it					
I got on well with my teammates					
I was bossy with some teammates					
I made a good contribution to my team					
I listened to my teammates' ideas					
I liked working with my team					

How well did you work with your team during the workshop?

	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
Improved my ability to work with others					
Developed my research skills					
Increased my confidence using technology					
Allowed me to make new friends					
Improved my communication skills					
Allowed me to be creative					
Helped me learn and explore new topics and information					

Individual Reflection Sheet

<u>Two</u> things I did well this time:

1.

2.

<u>One</u> thing I would like to improve next time:

1.

Sample Lesson Plan 3: Digital Media Literacy

BRIDGE21

Topic/Theme: ICT / Digital Media Literacy

Class/Year Group: 1st and 2nd year (ages 12 - 14)

Teaching Method: Learning through teaching

Outline

What is the **challenge** your students will tackle?

2nd year students, who have already gained a level of proficiency in using ICT, will teach new students in the school (1st years) how to use ICT and digital media responsibly and safely.

Why is this **meaningful** to the students - what's the hook?

For 2nd year students, the act of teaching and being in a position of responsibility is engaging.

The 1st year students will enjoy interaction with their fellow students.

What are the **key ideas** that the students will remember?

An awareness of Internet safety and good practice.

How to deconstruct a topic in order to effectively share it with others.

Learning Objectives

What **curriculum content** will be addressed?

Internet Safety
Digital Media Literacy Skills including:
- Word Docs
- Powerpoint presentations
- Schoology - folder arrangement and creating portfolios
- One Drive\ Google Drive - Managing information and thinking

By the end of this activity students *will be able to:*

- *Use and navigate the Internet safely and responsibly*
- *Develop critical thinking skills*
- *Manage, analyse and store information*
- *Share documents and projects*
- *Work collaboratively on digital media tasks*
- *Communicate effectively using digital media*

How are four key **21st Century Skills** addressed?
   Creativity
2nd year students will need to think creatively about how to deliver the content- students redefine what they have already learned.
Students who are learning will learn new ways to produce and present their work.
   Communication
   2nd year students will have to clearly and positively articulate to younger students the content. Learning students will improve their listening, eye-contact and positive body language skills.
   Collaboration
1st and 2nd year students will need to work effectively and efficiently with each other.
   Critical Thinking
• 2nd year students will need to analyse content and decide what are most important factors to teach.
• 1st year students will need to identify what they have learned and how to apply it to their everyday learning

Reflection

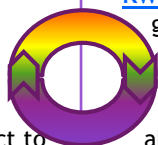How will you know that they are learning?

The teacher will assess progress through regular checking and monitoring, class observation and questioning.
2nd year students will need to produce resources.
1st year students must produce digital media project to demonstrate their understanding

In what ways will students reflect on progress?
KWL is an instructional strategy that can be used to guide students through a topic. Students begin by brainstorming everything they Know about a topic (recorded in the K column of a K-W-L chart). they then generate a list of questions about what they Want to Know about the topic (in the W column). New information that they learn is recorded in the L column.

Sample Lesson Plan 3: Digital Media Literacy

Possible Aspects	Description	Time
	Session 1: 2nd year students investigation & preparation Session 2: 2nd year students Session 3: 2nd year students and 1st year students Session 4: 1st year students present and reflect	4 hours in total
	2nd Year Set up: 2nd year students explore how to teach ICT Digital Media Literacy skills to younger students (e.g. ICT Lesson Plan). They identify relevant content and methodologies for teaching.	30 mins
	Create: 2nd year students create materials and resources to best teach content and assess student understanding.	30 mins and collaborative homework
	Set up: Groups will comprise of two 2nd year students and two 1st year students: A picture will be cut in 4 and students must find their corresponding team members by completing the picture.	5 mins
	Warm up: Getting to know your team members exercise. Set of questions to ask each other and give feedback on to class later.	10 mins
	Investigate & Plan: 2nd year students will teach and present their materials and resources to 1st year students. 2nd years will mentor the 1st years during their create phase	15 mins
	Create: The 1st year student group create a digital project to demonstrate grasp of new digital media literacy skills.	45 mins
	Present: 1st year students present digital media projects to their own peers and class teacher will assess their abilities.	40 mins
	Reflect: Group and individual reflections using 2 stars and a wish, Google forms survey, etc.	20 mins

Research

- **Bibliography**

- **Research associated with the Bridge21 Approach**

- **Useful background reading**

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Research Associated with the Bridge21 Approach

The Teaching for Tomorrow project has its foundations in a pedagogical model known as Bridge21 (www.bridge21.ie). Conceived of in 2007, Bridge21 is a project designed to support the development of an innovative 21st century learning environment in 2nd level schools in Ireland. Bridge21 has a strong history of published research, including the following:

- Lawlor J., Conneely C., Oldham E., Marshall K., Tangney B., *Bridge21: Teamwork, Technology and Learning – A pragmatic model for effective 21C Team-based Learning*, Technology, Pedagogy and Education, 2018, org/10.1080/1475939X.2017.1405066

- Lawlor J., Marshall K., Tangney B., *Bridge21 – Exploring the potential to foster intrinsic student motivation through a team-based, technology mediated learning model*, Technology, Pedagogy and Education, 2015, 1-20 http://dx.doi.org/10.1080/1475939X.2015.1023828

- Lawlor J., Conneely C., Tangney B., *Towards a pragmatic model for group-based, technology-mediated, project-oriented learning – an overview of the B2C model*, Proceedings of the 2010 TechEduca Conference, Athens, May, Lytras, M.D.; Ordonez De Pablos, P.; Avison, D.; Sipior, J.; Jin, Q.; Leal, W. Uden, L.; Thomas, M.; Cervai, S.; Horner, D.G. (Eds.) 2010, pp 602-609.

See http://bridge21.ie/resources/ for a complete list of related publications.

Useful Background Reading

Useful Background Reading

In addition to the publications, there are a number of European reports that were influential in the design of the Bridge21 approach. These include:

1. [Primas](#)
2. [Macsil](#)

The Bridge21 methodology has its foundations in the [World Organisation of the Scout Movement](#), and the Activity Design Template was inspired by the design thinking movement that began in the [d.school](#) in Stanford.

Useful Resources

Teaching for Tomorrow aims to keep up to date with developments in the fields of inquiry-based learning, project-based learning, technology-enhanced education and 21st Century Learning. Up-to-date research and resources are provided on our twitter feed - [@teachingfor2mrw](#) – and on our Facebook page - [www.facebook.com/Teachingfor2mrw/](#).