

ITEC LEARNING ACTIVITY PACKAGE

LEARNING IN TEAMS

The iTEC Learning Activities are based on the Learning Scenarios and describe in concrete terms what can be delivered in a classroom. iTEC’s Learning Activities are developed through a collaborative process, involving input from teachers, policy makers, pedagogical experts, and representatives from industry.

Learning Activities are used by a wider group of teachers in large-scale pilots to produce classroom activities that include the principle of innovation, derived from the original Learning scenario. These teachers themselves then provide the learning objectives, context and delivery. Learning activities often involve forming teams, collecting data outside the school, and creating a multimedia presentation.

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Learning activity 1 – Forming Teams

Divide the students in your class into teams of 4-5 students. Each team works on a separate topic of inquiry that is related to the theme of the course. The students suggest topics they are interested in and are grouped accordingly, taking also into account their differences to create functional heterogeneous teams.

Recommended frequency: once

You can look forward to...

- motivating students by allowing them to study topics they are interested in
- forming heterogeneous teams quickly
- sharing your mental notes about students to substitute teachers

Your students may learn...

- social skills by working with students other than their friends
- a deeper understanding of their topic of interest
- the basics of other teamwork topics
- how their abilities affect their learning progress

Ideas for using technology

Forming Teams

It is highly recommended to use TeamUp for forming teams that are based on students' topics of interest and overall teamwork dynamics. With TeamUp you receive a visual overview of the team formations.

Alternatively, you may form teams of students using a method of your choice, or use a tool you know. Make sure to record that method, and to explain its benefits.

Teams based on mental notes

TeamUp allows you to record mental notes by attaching badges to students. Based on these, TeamUp can generate heterogeneous teams. You can decide what each badge means, for example, the 'bumblebee' badge can refer to a student who is easily distracted, hard working, likes to move, or other.

Steps

1. Preparation

- Set up TeamUp by adding names, portraits and mental notes of the students in your class.

- Remember to also add your students' language skills. See TeamUp tool manual, part 1 'Add and edit students' for more information.
- Decide whether you assess teams or individuals.
- You may print the PDF of student portraits (<http://teamup.aalto.fi/TeamUp-Student-portrait-Illustrations.pdf>), and take images of the illustrated characters to represent your students in TeamUp.

2. Introduction

- Present the theme of the course as to provide students with basic information, while leaving many questions open.
- Ask students to think about what they would like to study.

3. Activity

- Ask the students to suggest topics for inquiry and collect their suggestions. Rephrase, alter or reject suggestions.
- Let students choose for their favourite topics and create teams to match students with their topic choice.
- Students start teamwork, which usually spans across multiple lessons, probably the entire course.

4. Assessment

- Use your mental notes as a guide in assessing student performance and improvement.
- You may brainstorm assessment criteria with the students, or give a diagnostic test at the beginning of the course to understand what the students already know and what their weaknesses are.

Learning activity 2 – Ad Hoc Collaboration

Your students collaborate with individual students or teams of students from other iTEC schools. The subject area, age group, language and country may be the same or different than your own. Collaboration is driven by the students, and only guided by the teacher. Ad-hoc and serendipitous collaboration is encouraged. Do not instruct your students to contact students they already know in other schools.

Recommended frequency: at least two times, or continually.

You can look forward to...

- adding a multicultural theme to any subject area
- broadening your cross-curricular understanding
- sharing responsibility with your students

- guiding your students to make meaningful choices
- motivate your students by collaborating with foreign students

Your students may learn...

- to effectively contact, encounter and collaborate with foreign students
- to collaborate with students outside of their social circle
- about the interconnectedness of different knowledge area

Ideas for using technology

Finding others

- Students share regular updates of activities through a channel that other iTEC students can see, and follow other students' content. The more interesting the updates, the more collaboration opportunities may emerge. You may consider projecting the live stream onto a wall.
- **Learning in Teams:** each team creates a Twitter account (<https://twitter.com>) and use the hashtag #itec2 as the channel.
- **Learning Individually:** students use their existing accounts on Facebook and join the Facebook group 'iTEC Students Collaborate' (<http://on.fb.me/Rblxkp>). If some students do not want to use Facebook, they can use Twitter instead (hashtag #itec2).

Providing resources to receive resources

With their updates, students should include links to their latest work in their posts, even if that means sharing the same link again, with their updates. Supports students in responding to queries and comments and sharing back if they receive something useful from others.

Moving to another channel

Once students find a potential collaboration partner, they contact them directly and possibly continue conversations using other channels, such as videoconferencing, Skype, Google+ hangouts, email, etc.

Steps

1. Preparation

- Familiarize yourself with the technologies that you will suggest your students to use.
- Prepare assessment criteria for this activity.
- Ask an active student to demo them to you before facing the entire class.

2. Introduction

- Introduce the technologies to the entire class, possibly with the help of the student who helped you before.

3. Activity

- Students search for related work, follow others and share resources.
- Students present their work-in-progress several times during the course and deliberate how to present their findings to others.
- Occasionally, videoconferences or online presentations for collaboration are set up. E-mail and discussion tools can also be used.
- Students discuss their experience of participating in the project with students from other classes online.
- Follow the progress and provide guidance when necessary.

4. Assessment

- Assess and grade the students' work independently or together. Your existing assessment criteria can be used as a basis to adapt and modify collaboratively.
- Involve students to develop transparent assessment criteria for the project with you. Revise the assessment criteria collaboratively during the project. Be open to let personal interests shape it.

Learning activity 3 – Learning Oriented Browsing

Developing 21st century skills includes building the ability to use the internet in a focused way to find relevant information from meaningful sources. In this activity, the students use the internet in a structured way to collect information about a specific topic, and to locate online learning resources that they can be critically used in their inquiry. Recommended frequency: at least two times

You can look forward to...

- using the internet in a meaningful learning oriented way

Your students may learn...

- to differentiate trusted from non-trusted source
- use the internet to become more informed about a particular topic
- to organize their bookmarks and navigate through multiple open tabs

Ideas for using technology

Collecting links

Use social bookmarking tools to collect links, comments and additional information about online resources, and share link collections with others. Pre-pilot teachers recommend Diigo (<http://www.diigo.com>), where the teacher can create a special educator account to better manage their students. Other suitable services include ThinkBinder, Delicious, and Storify.

Steps

1. Preparation

- Identify example sources to present to students.
- Decide how the browsing session results are used in the project.

2. Introduction

- Discuss situations and modes of using the internet: entertainment or playing games, social or following friends, finding one specific piece of information or learning about a wider topic. Emphasize the need to identify and separate these modes and purposes in school.
- Discuss the students' understanding of a learning resource. Present your example sources. Each student composes a plan of the kind of information they browse for (i.e. scientific research or articles, commonsense explanations, pictures, videos, or animations). What will they do with the found resources?
- Together with the students identify sources (i.e., online repositories, news sites, blogs, video sites, community forums) where to look for information.
- Show Diigo to the students, let them create an account, and show them how to link their Diigo accounts to their Twitter accounts. If you have a Diigo Educator account, you can create accounts for your students as well.

3. Activity

- The students search the internet according to their plan. Whenever you recognize that the students' browsing behavior differs from their intentions, start a discussion about their reasons.
- Students annotate their findings, including how and for what they intend to use a resource.
- For additional browsing cycles, students explain how this cycle will differ from the previous.
- Ask the students to read the comments on online news articles and blog entries, and to explain the purpose of each commenter in their annotations.

4. Assessment

- Evaluate the appropriateness of the sources that the students identified as relevant.

- Review the quality of annotations, and pay special attention to their qualitative and quantitative fluxes throughout the pilot

Learning activity 4 – Reflection

Your students record, post and share periodic short updates about their work progress, perceived challenges, and future plans so you and other students can follow their progress. Recording short audio or video updates of their learning experience allows students to practice presentation and speaking skills, reflection, and planning. The recordings help them to quickly resume working in upcoming sessions. You can follow all student activities by investing a small amount of time after each reflection activity.

Recommended frequency: after each day of activity

You can look forward to...

- reviewing team progress quickly and comfortably

Your students may learn...

- to reflect on their work, and to provide and receive criticism
- a deeper understanding of a study topic
- a basic understanding of the study topics of others
- to summarize, communicate and plan their work in progress
- speaking and presentation skills

Ideas for using technology

Recording 1 minute updates

- **Learning in Teams:** TeamUp supports audio updates with images, and limits the recording time to 60 seconds.
- **Learning Individually:** The students can record updates using their mobile phones or other audio or video recording software and to share their recordings through a shared network folder or via email with you and the entire class. VoiceThread, AudioBoo, YouTube, and other services may be used.

Steps

1. Preperation

- Decide how many updates you require students to share with you and the rest of the class, and when you would like them to be created.

2. Introduction

- Instruct students to record updates in the form of a newflash, using the tone of a television or radio news reporter.
- Let them know that each recording can only be 1 minute long.
- Let them know that the in TeamUp updates are shared with the whole class. When using other tools, make sure your students understand how to share updates with classmates and the teacher.
- The updates may also be shared with collaboration partners in other schools.

3. Activity

- Remind the students to post updates of their most recent activities, and to follow others regularly. Make sure that this is happening.
- Start each lesson by asking the students to listen to their previous updates.
- Follow the students' progress by checking their audio updates. Intervene to support them when necessary.
- At the end of the project, students record an update summarizing all activities, explaining future steps, and mentioning problems that they overcame.

4. Assessment

- Use the daily updates to gauge the levels of participation and depth of inquiry.
- The students' reflection recordings may be used as part of the assessment. For example by comparing your notes with the recordings, to see how deeply the teams engaged with a topic.

Learning activity 5 – Peer Feedback

Good quality peer feedback is a merit to the student providing the feedback, as well as those receiving it. Students view each others' work and provide feedback, praise, and criticism. Peer feedback can be used for project outcomes, or as an iterative activity during the pilot.

Recommended frequency: at least two times

You can look forward to...

- simplifying your assessment tasks
- recognizing needs for added guidance

Your students may learn...

- to accept criticism from others and value audience feedback
- to provide constructive criticism
- to productively use criticism to review their own work and identify opportunities for improvement
- to reflect on work in progress

Ideas for using technology

Feedback discussions

Students can share results or updates using any publishing tool that allows commenting. Online blogs, Twitter, Facebook, TeamUp, wikis or Google documents can be used for text based reports and comments.

Images can be uploaded to Flickr or Picasa to create slideshows that summarise the work. This can be rewarding for students, especially if you ask your students to comment on the works of their immediate peers and students of other classes.

Steps

1. Preparation

- Decide the activities and channels that could be used for peer feedback.
- Collect or generate examples of constructive and non-constructive peer feedback.

2. Introduction

- Explain the meaning of peer feedback, including the need for critical but constructive comments. Present your collected examples of constructive and non-constructive peer feedback.
- Ask all students to view the projects of others, and to note what they find interesting, excellent, poor, or otherwise noteworthy during the pilot.
- You may ask students to save screenshots of their comments or links to the pages they commented on.

3. Activity

- Ask the students to view presentations or projects of other students and comment on them. The students prepare constructive feedback, and present it to the recipients or the entire class using a suitable method.
- Ask students to also acknowledge comments others left on their project outcome and documentation, and to draw ideas for further development from them.
- Avoid misunderstandings by moderating the activity.

4. Assessment

- Peer feedback can be used in assessing the performance of those who provided and those who received the feedback, for example by discussing the students' motivation to take the feedback of others into consideration, or their ability to formulate constructive feedback.

Learning activity 6 – Information Grouping

Students write their findings, the information and the data they collected on pieces of paper and post-it notes, and visually group them. This is a professional method used to analyze collected information and data, and to identify relationships between findings.

Recommended frequency: at least two times

You can look forward to...

- professionally analyze information together with students
- recognizing relationships between findings
- hands-on active and visual engagement with information and data collected
- progressive data analysis

Your students may learn...

- to professionally analyze information collaboratively
- more in-depth understanding about their topic
- to recognize the most important points from a large amount of information
- to recognize relationships between findings
- to utilise conversation to make sense of data

Ideas for using technology

Low-tech and high-tech

Work with paper, post-it notes, scissors and pens as a tactile grouping method. Use of digital tools means losing the advantages of tactile manipulation, but if the grouping activity spans across several classrooms, you may consider using mind mapping, note gathering, and other collaborative online tools.

Steps

1. Preparation

- Make sure that everyone collected the data or information they set out to find.
- Arrange the equipment: Prepare pens, paper, post-it notes, tape, scissors and glue.
- Plan the space: Arrange for walls or large papers for students to group and stick their paper notes on.

2. Introduction

- Have a pedagogically meaningful conversation with the students about the data they collected: What did they collect, and how is the information meaningful for their project?
- For easy access, ask the students to move all of their information and data into one location, or to identify all sources.

3. Activity

- View and discuss the data with the students.
- Students write all information and data in the form of headlines or short sentences or figures on post-it notes or small pieces of paper, and group their notes.
- Remind the students to visually present relationships between the notes when grouping the data, for example, by drawing lines between information, placing notes hierarchically, or other spatial arrangements.
- Students write titles for the created groups, and document emerging project ideas.

4. Assessment

- View and discuss the spatial arrangements with the students.
- Comment on improvements.
- **Learning in Teams:** Ask the students to grade their teammates' contributions. You may use the student grades as help for forming your own assessment.

Learning activity 7 – Prepare Results

Students document their overall learning outcome, summarise the comments and explain possible future steps, in an audiovisual or other multimedia piece. Students share their work with others to transfer their learning, to communicate the background of their project, to let others know about the possibility to remix their work, and to receive feedback for improvement. This includes work in progress and final outcome.

Recommended frequency: at least two times

You can look forward to...

- students stepping into the role of experts
- feedback and reflection sessions between people using the student work as reference
- learning about well performed activities and activities students need to practice more
- illustrating school learning activities to colleagues and parents
- receiving material to inspire future courses and your colleagues

Your students may learn...

- multimedia editing skills
- collaboration on a project
- to prioritize aspects of information
- to document, communicate and summarize learning process, results and the importance of a topic to others
- about the projects, data, and topics others have been working on

Ideas for using technology**Using 1 minute updates**

The recorded audio updates can present the basics of a result, and can support the creation of more elaborate communication material. See activity 'Reflection'.

Additional recordings

Technologies such as digital video cameras and audio recording devices can be used to create videos that are rewarding to look at after the project.

Steps**1. Preparation**

- Prepare a presentation of the benefits and drawbacks of different media.

2. Introduction

- Ask the students to create a presentation that documents their learning process and results using a diverse range of media.
- Speak with the students about the production process, planned steps, and requirements.
- Students choose a purpose, an audience, and a medium for their presentation.
- Provide sharing platform options, or ask students to help you choose one.

- Present the benefits and drawbacks of different media to students, and discuss speech and performance techniques, as well as ways of convincing an audience.

3. Activity

- Students create storyboards to visualise the narrative of the media presentation, and decide which collected files, such as photos, video clips, voice recordings of interviews, geotags, or animations to use to represent their conclusions in a meaningful way.
- Students create and design the presentations, and edit their data to fit the storyboard narrative.
- Students collect missing multimedia elements and information.
- Guide students in planning and rehearsing their presentations.
- **Examples:**
 - Students with geo-tagged information can create a map visualization.
 - Use resources for exam preparation, publish best resources and share them with others.

4. Assessment

- Review all presentations. Compare everyone's progress updates with their presentations to see if all important steps are included in the presentation (see activity 'Reflection').
- Student work can be used for open feedback and reflection sessions.
- The assessment may be co-developed with students.

RELATED LEARNING STORIES

These Learning Stories exemplify the two Packages of Learning Activities described above. Choose one of the Learning Stories for your pilot. Remember, they are merely inspirational material, not a recipe. For example, either of the Learning stories may be performed in form of either package 1 'Learning in Teams' or package 2 'Learning Individually'.

1. Mathematics in a multicultural setting

I am a teacher in Spain, and the first language of many of my students is not Spanish. These additional-language students form teams (see activity 1), and begin their math course by starting a wiki, in which they enter explanations of math concepts they are familiar with in their native language. They link these language versions to those entries that discuss the same concepts in another language that were created by other classes and students, and add a list of new concepts that are expected to be handled during the course.

The students continue by gathering guides, videos, exercises and other resources online that relate to the topics they need to learn about (see activity 3). They find these online resources in their native language, and link them together in a single repository by using Diigo (or other social bookmarking services). I support the data gathering by preparing the students, giving them starting pointers, as well as following the Diigo group and their regular audio updates (see activity 4). They post the links to the wiki as well.

The students prepare short presentations, which include a Q&A session. They present their results to other students in Spanish and receive feedback. I am supporting the communication and sort out misunderstandings (see activity 5).

Then, the additional-language students use the iTEC collaboration environment (see activity 2) to find other math students (either native speakers or speakers of a different foreign language) and invite them to a virtual team. Together, they reflect on their understanding of the concepts by grouping their information visually (see activity 6), and try to use math as the common language in making sure they all understand everything correctly.

The additional-language students find a classroom from their native country, and ask students there to look at their math questions and give feedback (see activity 2 and 5). They create math questions to test their understanding. When possible, the questions are based on concrete situations, such as information from their own classroom, numerical facts from their home countries, etc. Finally, the results of each team are shared with others in the class. (see activity 7).

2. Embedding exam preparation in learning activities

After each lecture, it is my students' homework to create resources based on the topics discussed in class. I instruct the students on the types of resources that are most appropriate for each topic. These may include:

- exam questions (using an online questionnaire tool)
- crossword puzzles
- audio podcasts
- videos
- mind maps (Mindmeister, Bubbl.us, etc.)
- collaborative wiki notes (Wikispaces, Etherpad, etc.)
- and more

These resources are stored in online services that are most suitable, and linked to from our course home page. The resources are available to students from several classrooms in various cities. All students try and test resources made by others, give feedback in form of suggestions, and vote for the best resources (see activity 5).

Resources are then further edited, either by the original author, or in collaboration with others.

I follow my students by tracking their audio updates (see activity 4). Most of the time, I let the students help each other, but instruct them on how to critically browse for and evaluate online information, and how to gather data online (see activity 3). During the course, we use post-it notes and list all topics of the course and all of our resources to see both relate to each other. This helps the students identify missing areas of the subject matter (see activity 6).

Students use the iTEC collaboration environment to let others know about their new project works and works in progress. There the students also negotiate about ad-hoc collaborative sessions with other students from around the country and internationally. These collaborative activities can address the curricula of many courses (history, foreign language, geography) simultaneously (see activity 2 and 7).

3. Students creating science resources

I want my students to become more interested in science topics, and decide to ask them to create exhibits that they show to younger students of other schools.

I start with a formative test to evaluate how much they know about the course's topics. Then, I create small heterogeneous teams that mix different expertise (see activity 1). Each team works on one science concept and produces an exhibit that illustrates it.

To support the students, I give them pointers to various resources, including people and related events (see activity 2 and 3). They browse and learn together and teach one another. They try different ways to teach the concepts, give each other feedback, and choose those that seem to work best based on a map that visualizes out the findings of their trials concretely (see activity 5 and 6). Based on these experiences, they construct their "virtual science museum exhibit" (see activity 7). A poster, one physical and one virtual simulation, a video recording of a lecture, a rap song, and a puppet play are among the most exciting exhibits by the students in my class. Each group also creates a few sample problems to accompany their exhibit.

I monitor team progress and ensure that their productions are accurate and complete (see activity 4). In some cases, I suggest improvements. When the exhibits are ready, each team finds students of a lower grade that would be interested in learning the concepts, and work with them and their exhibit to teach them (see activity 2).

After the course I can use the exhibits and sample problems created by the students to prepare year-end subject reviews, and later use the resources to spice up my courses.