Scenario Title: Personalisation - Topic: friction (CCL, Europe)

Scenario Overview

This scenario aims to help develop more personalised approaches to learning, using as an example the topic of friction in the physics curriculum with younger students, e.g. post-primary. However, the scenario can easily be adapted for other subjects and topics.

Personalised learning aims to provide a more tailored education for every learner. It begins with a deep understanding of each learner's needs, and then seeks to provide relevant and challenging opportunities that support them as they progress in their learning and development. ICT and communications technology can be a powerful tool for personalized learning as it allows learners access to research and information, and provides a mechanism for communication, debate, and recording learning achievements. Indeed, without ICT support, fully personalising learning for a typical class of 30 students is almost an impossibility. More realistically students can be grouped on the basis of their profile and preferences, as in this scenario, and activities differentiated rather than personalised. This makes the first stage of the scenario particularly important – forming the right groups, setting different objectives, and organising resources to support different learning paths. An individual learning plan or individual learning activities should be negotiated between the teacher and the student in the end of a lesson. At each stage of this scenario the following should be at play:

- Learner choice and participation in designing learning (personalisation puts the learner in the driving seat)
- Understanding the profile of the individual
- Working at different speeds
- Having different resources available for different students.

Learning Activities	dream Free thinking, sharing ideas	explore Looking for and finding content	map Structuring thoughts	make Developing or practising	ask Interviewing/ Feedback	re-make Revising	show Performing and presenting
Time (weeks)	Depending on the subject Normally 2	Depending on the subject Normally 3/4	Depending on the subject Normally 1/2	Depending on the subject Normally 3/4	Depending on the subject Normally 1	Depending on the subject Normally 1	Depending on the subject Normally 1

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Goal (learning outcomes, match to specification)	To personalise teaching and learning To form groups of students To learn about the topic of friction in the physics curriculum To develop 21st century skills of problem solving, collaboration, and learning to learn	To develop skills of self-discovery, curiosity, effective research, framing (re)search questions		To learn about making videos			To develop online publishing skills
Description (of each learning activity)	Discuss with students the appropriate level of personalization as part of the scenario Students think about how they	Students brainstorm ideas to cross learning boundaries, which promotes creative learning and knowledge integration	Identify the learning issues for research that promote active learning and critical thinking Teacher approves final ideas	Research to construct; action plans promoting new knowledge development Drafting and redrafting; make the prototype product that	Workshop to present prototype and thinking to other groups (expert advisors, teachers) Feedback	Reflect on feedback Agree on changes in the group Some tuition on what makes effective and useful feedback;	Report research findings to the groups, promoting peer-to-peer learning to complete the final products Public exhibition of product; online

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	prefer to learn and their prior learning	Students collect data and research the answer to the question, framing online searches appropriately.	Students mind map, produce charts/data, compare and contrast. Mapping can take place in a flipped classroom	presents and answers the question		remake the product (possibly in the flipped classroom)	exhibition of learning journey/process and end result e.g. make a video, blog, publish book, website, learning journal for whole project
	Teacher presents the design brief and suggested success criteria	Teacher provides differentiated paths through the activity and helps students who need support to find and evaluate the information	Groups decide on final product to be produced that answers the question adequately				
	Teacher ensures that individualised learning experience corresponds to individual learning needs, learning biographies, and cognitive skills						
	Students are grouped by similar starting points						
	Teacher frames a 'big question' for each group (or class if appropriate) e.g. "Why are your hands warm when						

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	you rub them?" There could be a different topic for different groups (a different big question related to the overall theme of friction), e.g. "Why can you see shooting stars?" Students discuss the problem scenario in pairs or groups						
Learning Environment/s (the physical or virtual setting(s) in which learning takes place)	As flexible as possible (home, hospital, school, outdoors, etc.)	Flexible, depends on the problem Exploration can take place in a flipped classroom	Classroom	Linked to the product making can take place in a flipped classroom	School video conference/ Skype	Linked to the product	School or special (relevant) location

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Digital Technologies and Tools	Important to justify the need for 1:1 access to tablets, and their added educational value; focus on content, educational objectives, not form (tablets, tools) Tools such as Team up for grouping and Reflex Google sites for eportfolios and learning journey TACKK for blogging VLE able to offer personal learning journey and info about individuals in class, e.g. Moodle	Semantic web Google Somewhere to record findings Throughout: There must be an individual collection of resources in a personalized learning environment on the tablet, including personalised apps, content and/or learning activities.	Mind mapping Spreadsheets Graphics Graphic organisers (chosen by students with direction by teachers)	Linked to product but camera to record progress	Presentation tools Multimedia Online conferencing	Online test tools but depends on products	Show web content E-portfolio Digital camera or video Presentation tools

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	Woki (use of fun avatars)						
Roles (teacher, students, parents, experts, etc.)	Teacher uses data and understanding of students to inform the grouping of students Teacher as facilitator and initial ideas/design brief. Teacher needs to be experienced and to work more creatively, unconstrained. Important to match activities to timetable constraints. Students as consumers and influencers. Age:	Learning is personalised for students throughout, i.e. have clear and demonstrate innovative teaching and learning concepts that builds on the interests, needs and biographies of students and that used tablets for that purpose. Throughout: teacher must work together with the student to facilitate a differentiated learning experience,	Students: as analysts/critics. Teacher: as guide.	Students as creators, understanding the difference between plagiarised and original work. Individual roles within group. Teacher as guide, here ensuring that students are aware of plagiarism Experts as advisors.	Parents as experts/advisors Students: as presenters. Students could use expert peer tutors or mentors to scaffold their completion and personalisation of tasks Specify how students will work with experts.	Students: as producers. Teacher: as assessor.	Students: as experts.

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	over 10. It is important that the teacher knows each student well and has accurate information about their environment. Students should be highly motivated. Parents need to be engaged as this scenario takes free time after school, as supporters and supervisors. Experts as creators of intelligent tools (maybe even present brief), check what is practical/possible, role models, judges. Consider roles for gifted students and	supported by personalised learning services e.g. tutoring, mentoring, or also personalised apps and learning spaces. Teachers can facilitate this process, e.g. through personalized learning environments. Students: as researchers. Teachers: as guide. Parents: for home activity.					

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	those with special needs.						
Collaboration (team work)	Learners should be divided into groups according to their learning preferences Collaboration could be face-to-face or online	Research within teams Share with other groups and questions question findings Groups' internal collaboration activities could be applied	Teams explain their chosen method to peers and review and comment on each other's work	Team members have a personally defined role	All to present prototypes Everyone has a role Everyone shares their involvement Groups' activities could be combined with the other groups in Discussion and Reporting.	personal roles	Groups' activities could be combined with the other groups in Discussion and Reporting.
Reflection (reflecting upon one's learning and reporting activity status and progress) AND Assessment	Teacher should ensure that personalisation recognises the value of prior experiences and learning biographies, and makes use of	Self-assessment and peer assessment Throughout: teacher must specify appropriate learning outcomes against which the student must collect evidence of	Teacher assesses progress, skills and competencies so far. He ensures use of ICT is directed to educational ends, not for itself (i.e. the aim is to learn about, for example, friction,	Self-assessment Students develop a learning journal or an ePortfolio as well as use personalized online services or apps to plan individual learning targets,	Feedback from presentations Reflection on feedback; implications for next phase Students extend their learning by sharing with peers, teachers and	Check that project still meets the brief Personal assessment from advisors Final changes needed Teacher does final assessment of end	Build feedback loop into information published Review progress against start points and targets

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(type, instruments)	individual learning preferences. Teacher should communicate to the class how the project will be assessed. Students negotiate the success criteria. Use of taxonomy to help visualise the learning gained throughout the project e.g. Solo taxonomy or Anderson's revised taxonomy Outcomes/success criteria negotiated. Students/groups may enter the project at different points	achievement over a period of time, using ePortfolios or blogs Define and provide examples of instruments to make the formative assessment	not video and online publishing) Students involved in self-assessment and peer feedback plus response time Teacher and students should be aware of copy-paste from the internet/ plagiarism, without learning taking place	learning activities and set their individual learning goals	parents as part of personalised learning conversations with explicit feedback	product and process Throughout: Students demonstrate their knowledge and skills by reflecting on their learning and adding artefacts to a digital portfolio	

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	Target setting by students/groups in negotiation with teacher (may be different entry/exit points)						

Resources:

- Five keys to learning – personalize the learning (Bromley, 2016): www.sec-ed.co.uk/best-practice/five-keys-to-learning-personalise-the-learning/
- What is personalized learning? (US Office of Ed Tech, 2017): https://medium.com/personalizing-the-learning-experience-insights/what-is-personalized-learning-bc874799b6f
- The difference between differentiation and personalized learning, Bray and McClaskey: www.teachthought.com/learning/the-difference-between-differentiation-and-personalized-learning/

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