



Ways to integrate creativity skills into primary and secondary education

Education leaders and employers are putting increasing emphasis on the importance of creativity.^{1,2} The pace of innovation has accelerated in recent years in response to new social, economic, and scientific challenges, and creativity skills will help learners participate and succeed as they join the workforce of the future.³ There is also evidence that individual employee creativity supports organizational innovation.⁴

Although creativity is often thought of as belonging to the arts, it should be understood as the ability to produce works that are both novel and useful,⁵ and include the originality and number of new ideas across disciplines. There are a variety of specific approaches to defining and supporting creativity.

Below are some sample learning tasks to give you inspiration for how students can develop and practice creativity in the classroom.

Subject	Learning activity
English literature	Creative writing assignment: Learners are given the first part of a short story and must compose the ending of the story themselves.
History	Learners are presented with a problem faced by real world historical figures (e.g. determine government structure following the French Revolution) and complete a problem-solving activity. Particular attention is paid to defining the problem and generating ideas for possible solutions.
Language teaching	Learners are asked to think of as many ways as possible to make a festival brochure more exciting. Particular attention should be paid to the number of different strategies learners generate as well as the novelty of the ideas.
Maths	Learners are asked to generate different ways to calculate, as closely as possible, the volume of a sphere. Learners can be given different sets of materials for calculating the volume (e.g. a bucket of water, a tape measure, a set of other spheres with known volumes).
Science	Learners are presented with a scientific problem (e.g. setting up a permanent human settlement on Mars). They then problem-solve and build out solution ideas. Particular attention should be paid to both brainstorming potential ideas and solutions as well as elaborating and further developing solution ideas.

¹ American Management Association. (2012). *Critical skills survey*. American Management Association. Retrieved from: <http://www.amanet.org/uploaded/2012-Critical-Skills-Survey.pdf>

² Andrew, J. P., Manget, J., Michael, D. C., Taylor, A., & Zablitt, H. (2010). *Innovation 2010: A return to prominence and the emergence of a new world order*. Boston, MA: The Boston Consulting Group. Retrieved from <https://www.bcg.com/documents/file42620.pdf>

³ World Economic Forum. (2016). *The future of jobs: Employment, skills and workforce strategy for the fourth industrial revolution*. Geneva: World Economic Forum. Retrieved from http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf

⁴ Amabile, T. M. (1988). *A model of creativity and innovation in organizations*. *Research in Organizational Behavior*, 10(1), 123–167.

⁵ Plucker, J. A., Beghetto, R. A., & Dow, G. T. (2004). *Why isn't creativity more important to educational psychologists? Potentials, pitfalls, and future directions in creativity research*. *Educational Psychologist*, 39(2), 83–96.

These are the big ideas behind the learning activities overleaf. Use these to adapt the examples for your students, or as guidance to devise your own learning tasks.

Creativity is relevant to everyday life and can be taught in many different disciplines

Many associate creativity primarily with creative geniuses in the arts or sciences, individuals like Mozart or Einstein. In addition to this type of eminent creativity, there are many examples of everyday creativity that are accessible to all people, and that can be directly taught.

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Everyday creativity occurs through novel experiences, such as when someone alters a cake recipe to improve the taste. Even though this isn't a new scientific discovery, it still represents creativity because it is novel for the individual and useful.

Creativity can be taught by encouraging the individual factors that contribute to a person's general creative potential. (See the next big idea for more information.)

Creativity is not restricted to certain subject areas. It can be infused into any course content where learners have the opportunity to explore novel problems, think flexibly, or examine an issue from different perspectives.

Encourage the development of individual factors that support learners' creative potential

One way to support learners' creativity is to help them develop creative potential. These three factors support creative potential:

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Level of expertise in a given subject. Creativity requires a certain amount of domain knowledge.

The ability to engage in unconventional or divergent thinking. (See the next big idea for more information.)

Tolerance for ambiguity and a preference for risk-taking. Learners also need sufficient intrinsic motivation to engage in creative activities. These can all be developed by creating a classroom environment where exploration and innovation are prioritized and valued and where learners feel free to make mistakes or have bad ideas without fear of ridicule or punishment.

Teach learners strategies for divergent thinking

Divergent, or unconventional thinking can support a learners' creative potential. Problem solving provides a useful framework for teaching divergent thinking skills.

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Divergent thinking refers to the ability to produce many unique and conceptually distinct ideas.

Divergent thinking is supported by teaching cognitive strategies that are used to support idea generation. Examples include brainstorming, problem-finding (efforts to identify, define, and represent a problem in a given space), and reversing assumptions (listing out assumptions on a given topic and using those assumptions - or the opposite of the assumptions - to generate new ideas).

Divergent thinking strategies should be taught in the context of novel, real world "problems" using instructional approaches such as case-based or cooperative learning. This makes the learning experience more meaningful and helps transfer the skill to other contexts.

For assessing creativity, consider incorporating both divergent thinking tasks and creative work products

While creativity on the whole is a complex and multi-faceted concept that is difficult to measure, assigning divergent thinking tasks and creative work products can provide instructors with useful insight into aspects of their learners' creativity.

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With divergent thinking, students' creative outputs can be evaluated in terms of their fluency (the number of relevant ideas), flexibility (the number of different categories into which those relevant ideas fall), originality (the novelty of the ideas), and elaboration (the amount of detail offered in support of the ideas).

Educators can also evaluate creative work products, such as poems, essays, sculptures, models, presentations, or other performances in relation to their novelty and usefulness.

These activities and products should be assessed with a defined creativity rubric with separate dimensions for novelty, usefulness, fluency of ideas, elaboration on ideas, etc.

Are you already incorporating creativity skills in your teaching?
Tell us how. efficacy@pearson.com