Applying Creative Thinking and Developing Creative Products

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Creative thinking is taking an idea, exploring mediums as ways to express that idea, and then presenting the finished product to an audience—is not that different from processes used in design thinking and creative problem-solving models.

Based on a 2021 Alignment Review Conducted by Karin Hess Using the *Essential Skills and Dispositions* Developmental Framework[1]

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Introduction

Creativity has traditionally been associated with a person's innate ability in the arts. For example, writers, painters, and musicians are considered to be creative when they produce original ideas, works, or techniques. However, creativity is not limited to demonstrating originality. More than 50 years ago, E. Paul Torrance introduced three additional characteristics that could be used to assess creativity: fluency (the ability to generate creative ideas), flexibility (the ability to change, rearrange, or synthesize ideas), and elaboration (the ability to specify solution or product details in order to test, get feedback, or make refinements to a solution or product). It is important to note that all four of these characteristics do not need to be present for a product to be considered creative. An abstract painting may lack elaboration but still demonstrate an original perspective.

Today, creativity and innovation are talked about in broader and more actionable terms that cut across content disciplines, such as when creative problem-solving processes are used to design (or improve upon) a product, solution, or process. The iterative processes artists use to create new work—having an idea, exploring mediums as ways to express that idea, and then presenting the finished product to an audience—is not that different from processes used in design thinking and creative problem-solving models: defining a problem, generating ideas and related information, considering possible approaches for intended users, developing and testing prototypes or solutions, getting feedback, and refining final ideas or products.

These rubrics define three dispositions of creativity for assessment purposes across many content disciplines:

1. **Applying creative thinking**, processes used to interpret problems and generate approaches to solving them

2. **Developing creative products or solutions**, individually or with others (e.g., planning, getting feedback, and testing and then refining ideas in order to develop products and solutions that are valued for being imaginative or useful)

3. **Reflecting on and building confidence** as a creative thinker and problem solver

Below are a few other distinctions to know about these rubrics:

→ **The rubrics were designed primarily for the purposes of instruction/formative feedback, peer assessment, and self-reflection**—not simply for a teacher to derive a score or grade. They therefore encourage students to learn from trying out and then refining untested and novel ideas.

→ In the tables outlining the rubrics that follow, criteria for the competencies of **self-awareness** and **monitoring and adapting** are in shaded boxes as a reminder to use them to guide peer assessment and self-reflection, as well as ongoing conferencing activities with students.

→ The phrases **creative challenge**, **creative problem-solving task**, and **creative products or solutions** are used throughout the rubrics. This wording is intended to set apart open-ended creative learning activities from what educators might typically teach as problem-solving processes in science, mathematics, and other such topics. And while applications of content are important to creative thinking and developing creative products, be they graphic designs, experimental uses of mediums in the fine arts, written material, or designs for manufactured products, it is the synthesis of the content with new approaches and possibilities that is most important to consider for assessing creative thinking or creative products. Mandating the use of a single approach to solve a creative challenge is antithetical to creativity, and often it is trial and error that leads to new learning and insights.

→ Unlike in many rubrics used today, in these rubrics **all performance-level descriptors are stated in the positive to describe what students CAN do at that level**, not what they can't do (which makes self-assessment more instructive). Positive wording reflects skills that continue to develop over time.

→ **Rubric descriptors are cumulative across performance levels:** "I can also …" means, "In addition to a lower, adjacent-level descriptor, I can also do this."

→ **Specific rubric wording used at some performance levels has a particular meaning:** "With prompting" means the teacher directly reminds, intervenes, or corrects in the moment, whereas "with guidance" means the teacher models or provides a process or checklist for students to follow.

Alignment with the Essential Skills and Dispositions Developmental Framework

	Cultivating & Evaluating Ideas	Tolerating Risk & Ambiguity	Experimenting & Validating	Self-Awareness	Monitoring & Adapting
Essential Skills and Dispositions Developmental Framework Criteria	Seizing personally meaningful insights and connections to imagine new possibilities, evaluating ideas for both novelty and effectiveness, testing boundaries, and identifying constraints	Dealing with uncertainty, taking risks, and balancing novel possibilities with limitations and norms throughout the creative process	Exploring and creating to test the relevance and effectiveness of an idea, overcoming setbacks, innovating through an iterative cycle, and communicating ideas to understand the perspective of others	Thinking about personal interests, strengths, inhibitions, and past experience throughout the creative process, and drawing on prior understanding to discover and interpret meaningful challenges	Recognizing patterns and growth in one's own work and ideas, integrating feedback and ideas of others, continuing to seek out new experiences, and developing a driving purpose
Applying Creative Thinking and Developing Creative Products Focus Questions	How do I come up with new ideas or solutions and then decide which ones will work best for the situation or show my most unique ideas?	Am I willing and able to take risks, try alternative ideas, and stick with an unfamiliar challenge throughout the creative process?	What is my process for developing, testing, and refining my creative products or solutions to make them more clear, imaginative, or effective?	How am I using my curiosity, personal interests, and past learning to build my skills and confidence when taking on creative challenges?	How do I use feedback and new learning to evaluate progress, modify an approach, or redesign a product to better reflect my personal ideas?

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	Cultivating & Evaluating Ideas	Tolerating Risk & Ambiguity	Experimenting & Validating	SELF-ASSESSMENT Self-Awareness	SELF-ASSESSMENT Monitoring & Adapting
	How do I come up with new ideas or solutions and then decide which ones will work best for the situation or show my best ideas?	Am I willing and able to take risks, try alternative ideas, and stick with an unfamiliar challenge throughout the creative process?	What is my process for developing, testing, and refining my creative products or solutions to make them more clear, more imaginative, or more effective?	How am I using my curiosity, personal interests, and past learning to build my skills and confidence when taking on creative challenges?	How do I use feedback and new learning to evaluate progress, modify an approach, or redesign a product to better reflect my personal ideas?
Emerging	**I can...** share creative ideas that reflect my interests or my "curious questions". (with guidance)	**I can...** try working on a creative problem with others, even if it's not like problems we've had in the past. (with guidance)	**I can...** follow steps provided to our group (e.g., using a model or demo) to develop an idea into a final product or solution. (with guidance, such as using an anchor chart)	**I can...** describe how one of my ideas or questions connects to a problem we want to solve. (with prompting)	**I can...** describe something I might learn when I work on a problem-solving task. (with prompting)
Developing	**I can also...** describe how someone else's ideas can help me to complete my challenge. (with guidance, such as through collaboration)	**I can also...** listen to the ideas of others and ask questions to understand how their ideas might help to solve a new challenge. (with guidance, such as an active-listening protocol)	**I can also...** change an example and explain how it reflects my own ideas or interpretation.	**I can also...** pick a creative problem-solving task that interests me from a list of choices. (with guidance)	**I can also...** describe a good idea that could help solve a challenge. (with guidance, such as through collaboration)
Applying	**I can also...** make connections to past problems and explain why some ideas would not work well for this situation or the problem-solving task.	**I can also...** figure out when to move or try a new idea when something isn't working. (e.g., it isn't practical in the real world or you have limited materials, tools, or medium)	**I can also...** develop a solution or product and use feedback from others to make it better.	**I can also...** work with others to figure out how to use our ideas, skills, or tools to solve a new creative problem-solving task.	**I can also...** make a list and explain the three most helpful things I/we did to solve a creative problem-solving task.
Extending	**I can also...** add more details or make changes to my/our plan for the final product or solution after getting feedback from others.	**I can also...** explain how getting stuck or trying different ideas helped me solve a creative problem.	**I can also...** show or explain the process I used: start with an idea, make a product, and then change or improve it (with guidance, such as sequencing a graphic organizer for drawing the steps).	**I can also...** describe how I used my interests or skills to complete a creative problem-solving task (with guidance, such as sentence starters).	**I can also...** describe how I meet learning goals when I complete a creative problem-solving task (with guidance, such as sentence starters).

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	How do I come up with new ideas or solutions and then decide which ones will work best for the situation or show my best ideas?	Am I willing and able to take risks, try alternative ideas, and stick with an unfamiliar challenge throughout the creative process?	What is my process for developing, testing, and refining my creative products or solutions to make them more clear, more imaginative, or more effective?	How am I using my curiosity, personal interests, and past learning to build my skills and confidence when taking on creative challenges?	How do I use feedback and new learning to evaluate progress, modify an approach, or redesign a product to better reflect my personal ideas?
Emerging	**I can...** suggest ways to use familiar skills or approaches to solve a new challenge (with prompting).	**I can...** work with others to suggest imaginative possibilities or practical solutions for creative challenges that are not like problems we've had in the past.	**I can...** follow a process provided to develop or adapt an example into a final solution or product that reflects my own ideas or interpretation (with guidance).	**I can...** choose a creative challenge when given options and explain how my interests, strengths, or past experiences helped me make the choice (with guidance).	**I can...** identify new skills or learning I might need to solve a creative challenge (with guidance, such as a KWL chart).
Developing	**I can also...** evaluate why some ideas used in the past would not work well for this creative challenge (with guidance, such as a decision tree).	**I can also...** identify strengths and limitations of ideas suggested before I develop a plan (e.g., lack of skills, time, materials, tools, or originality; not practical/useful).	**I can also...** explain how I got feedback from others to make improvements to a draft product or solution (with guidance, such as a feedback protocol).	**I can also...** investigate a creative challenge: make observations, locate related information, or adapt strategies that might work (with guidance or collaboration).	**I can also...** explain how I used feedback from others to improve a product or solution (with guidance, such as a feedback protocol).
Applying	**I can also...** list multiple ways to work on a challenge and explain how choices for this plan use our personal skills and ideas to find a solution (with guidance).	**I can also...** carry out a plan for a creative solution and learn from mistakes if an idea didn't work the way I wanted it to.	**I can also...** describe my creative process: develop a plan, get feedback, or test a solution, and decide what changes were needed to make it better.	**I can also...** describe how building on ideas from different approaches or sources helped me make a plan to solve a creative challenge.	**I can also...** summarize what helped me to make progress at each step: planning, getting feedback, testing, or making changes to a solution (with guidance).
Extending	**I can also...** use feedback from others to elaborate on or make changes to my/our plan to develop a final product or solution.	**I can also...** explain how a challenge helped me try new approaches or tools and what I did to stick with it and not give up.	**I can also...** analyze how changes made to my final product or solution made it better (more clear, more imaginative, or more effective).	**I can also...** explain how creative challenges helped me learn new skills or make new connections (e.g., expand my interests or see a pattern or alternative solution).	**I can also...** explain what I learned from doing this challenge that will help me when I try new challenges.

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	How do I come up with new ideas or solutions and then decide which ones will work best for the situation or show my best ideas?	Am I willing and able to take risks, try alternative ideas, and stick with an unfamiliar challenge throughout the creative process?	What is my process for developing, testing, and refining my creative products or solutions to make them more clear, more imaginative, or more effective?	How am I using my curiosity, personal interests, and past learning to build my skills and confidence when taking on creative challenges?	How do I use feedback and new learning to evaluate progress, modify an approach, or redesign a product to better reflect my personal ideas?
Emerging	**I can...** collaboratively brainstorm novel ways to approach a new challenge from different perspectives (with guidance, such as using a creative problem-solving model).	**I can...** work with others to brainstorm approaches to imaginative products or practical real-world solutions, and determine possible limitations for each creative challenge (with guidance).	**I can...** identify how my skills and familiar techniques and materials might be used to develop a creative solution that reflects my own ideas or interpretation.	**I can...** suggest ways to reframe a creative challenge to make meaningful connections with my interests, strengths, or questions (with guidance, such as sample driving questions).	**I can...** identify a learning goal for completing a new creative challenge (with guidance).
Developing	**I can also...** evaluate the novelty or the effectiveness of approaches or possible solutions.	**I can also...** plan a solution path for solving an imaginative or practical challenge that requires using some new or unfamiliar approaches and addresses possible risks or constraints.	**I can also...** make a plan to develop a prototype of my final product and test it or get feedback from others to make possible improvements (with guidance, such as a feedback protocol).	**I can also...** use new information related to a creative challenge to rethink my understanding of how to work on the problem (with guidance or collaboration).	**I can also...** get feedback from others to develop or make.
Applying	**I can also...** seek and use input on specific elements of my plan (materials/tools used, final product, testing ideas, etc.) to refine my approach or solution.	**I can also...** carry out my plan for developing a creative solution that reflects my ability to work through challenges and is personally meaningful.	**I can also...** summarize the process I used for developing a plan, testing or getting feedback on a solution, and deciding what changes were needed to make it better.	**I can also...** develop a creative solution by modifying familiar strategies and using personal insights, observations, and feedback.	**I can also...** summarize what helped me to make progress at each step: using input on specific.
Extending	**I can also...** describe how I was able to convey my interests, personal insights, or novel ideas in solving a personally meaningful challenge.	**I can also...** analyze how this challenge helped me try new approaches or tools and learn from mistakes or missteps that could be applied to future challenges.	**I can also...** use what I've learned to analyze alternative approaches that could have made the overall quality of my final product better (clarity, effectiveness, or uniqueness).	**I can also...** identify moments of new insights, self-confidence, or self-doubt when working on creative challenges and determine what helped me to persist.	**I can also...** use examples from this challenge to describe how solving a personally meaningful.

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grades 9-12

	Cultivating & Evaluating Ideas	Tolerating Risk & Ambiguity	Experimenting & Validating	SELF-ASSESSMENT Self-Awareness	SELF-ASSESSMENT Monitoring & Adapting
	How do I come up with new ideas or solutions and then decide which ones will work best for the situation or show my best ideas?	Am I willing and able to take risks, try alternative ideas, and stick with an unfamiliar challenge throughout the creative process?	What is my process for developing, testing, and refining my creative products or solutions to make them more clear, more imaginative, or more effective?	How am I using my curiosity, personal interests, and past learning to build my skills and confidence when taking on creative challenges?	How do I use feedback and new learning to evaluate progress, modify an approach, or redesign a product to better reflect my personal ideas?
Emerging — I can...	collaboratively brainstorm novel ways to approach a creative challenge from different perspectives (with guidance, such as using a creative problem-solving model).	generate approaches to imaginative products or practical real-world solutions and determine possible limitations for each creative challenge (skills, materials, tools, medium, etc.).	identify how my personal skills and familiar techniques, materials, and resources can be used to develop a creative solution or product that reflects my own ideas or interpretation.	with peers, use individual interests, skills, and motivations to define a creative challenge in different ways or to generate alternative approaches (with guidance, such as sample driving questions).	select a creative challenge to work on from options generated by others (with guidance).
Developing — I can also...	evaluate the novelty or the effectiveness of approaches or possible solutions.	plan a solution path for solving an imaginative or practical challenge that requires modified or unfamiliar approaches and addresses possible risks or constraints.	develop a prototype of my solution and test it or get feedback from others to determine possible improvements (with guidance, such as a feedback protocol).	develop a meaningful solution path to a challenge by integrating what I already know (familiar approaches or problems) with new ideas or information from other sources.	make a plan to get feedback from others so I can make possible improvement to a proposed solution.
Applying — I can also...	seek input on specific elements of my plan (materials/tools used, final product, testing ideas, etc.) and describe why this approach or solution is personally meaningful.	carry out my plan for developing a creative solution that reflects my ability to work through challenges and is personally meaningful.	summarize the process I used at each step: developing a product, testing it or getting feedback, and deciding what changes were needed.	use examples of decisions made during the creative process to describe how I'm applying new learning, developing personal insights, or overcoming limitations.	analyze what helped me to make progress at each step: using input on specific elements of my plan and refining or personalizing my solution.
Extending — I can also...	describe how I was able to convey my interests, personal insights, or novel ideas in solving a challenge.	evaluate the effects of approaches used and decisions made throughout the creative process and suggest how my learning might be applied to challenge established social, cultural, or artistic norms.	analyze alternative approaches that could have increased applying my personal insights or advanced the overall quality of my final product (clarity, effectiveness, or uniqueness).	analyze how using creative problem-solving processes helps me to pursue interests, seek out supportive resources or environments, and share ideas or products that positively affect others.	use examples from this challenge to evaluate how solving a personally meaningful challenge can be used in future challenges.

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