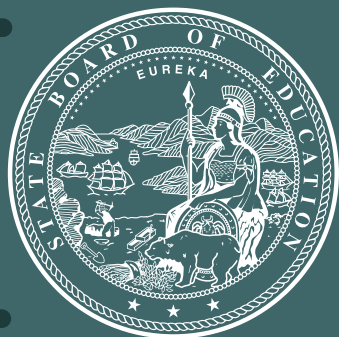# CALIFORNIA
Arts Education
FRAMEWORK

FOR CALIFORNIA PUBLIC SCHOOLS TRANSITIONAL KINDERGARTEN THROUGH GRADE TWELVE

Dance ▪ Media Arts ▪ Music ▪ Theatre ▪ Visual Arts

Chapter 8
Transcending Disciplinary
Boundaries – Arts Integration

Chapter 8: Transcending Disciplinary Boundaries— Arts Integration

> "Realize that everything connects
> to everything else."
>
> —Leonardo da Vinci

Introduction

The "awe and wonder" of learning in dance, media arts, music, theatre, and visual arts provide powerful pathways of cognitive and creative engagement as well as motivation for students. The arts disciplines offer unique ways of experiencing, knowing, exploring, and learning about the world. They improve and enhance cognition, memory, risk-taking, higher-order thinking, and creativity. The arts enable students to translate and understand abstract feelings, ideas, and inquiries. Students' learning is additionally enriched when they understand and experience how the arts disciplines integrate with one another and other content areas. Using their own experiences and knowledge, young artists can explore themes across all aspects of their world and interests—literature, sciences, history, environment, and personal and social issues. Arts education inspires, positively impacts student learning, and when integrated, provides pathways for learning that transcends discipline boundaries.

The *California Arts Framework* defines "arts-integrated instruction" as co-equal instruction in which students are learning and being assessed equally in one or more arts disciplines through the arts standards' four artistic processes and one or more other subject areas. To deepen and expand students' learning through co-equal arts integration, the intersection of the content areas authentically connects while addressing, assessing, and forwarding the learning objectives equally in all subjects. In this way arts-integrated instruction can augment and extend learning in the arts and other content areas. Arts integration is beneficial to student learning, but according to Hardiman et al., "Arts integration should not replace [discrete] arts education" (2019).

Sequential, standards-based, discrete instruction (teaching dance, media arts, music, theatre, and visual arts as distinct subjects) in arts disciplines is an essential component in all arts instruction, including arts integration. Arts integration can serve as a nexus between students' discrete content area learning to deepen conceptual understanding and the acquisition of desirable skills and habits. When teachers intentionally, meaningfully, and appropriately design and implement co-equal integrated instruction, they provide students with opportunities to discover the inherently integrative aspects of the arts, construct connections to other content areas, and synthesize their learning. Arts-integrated instruction enhances and expands learning in discrete discipline-specific arts and other content areas, supporting students in transcending the discrete subject-specific boundaries as they navigate all aspects of their world and interests.

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Arts Integration—A Co-Equal Approach

> "Consumed by the vast unknowableness of both outer space and the oceans on our planet, I think of the connectedness between everything and how we see patterns where we choose to look. When looking at the night sky and trying to recognize constellations, I try to picture the first people to draw those imaginary lines between the random pinpricks of light, making sense out of chaos. Then I wonder, if those lines connecting the dots across the cosmos were real, what they would look like from elsewhere in the universe. There is so much we do not know …. We still try to figure things out. To imagine. To find meaning."
>
> —Oliver Jeffers, visual artist and author (2019)

It is natural for humans to connect and incorporate new learning throughout their lives. This occurs in ways that are sense-making, provide new insight, and are useful for navigating this complex world. Arts education researchers point to the benefits of arts education's focus on process and creativity, which encourages students to "learn while they are creating and create what they are learning" (Sotiropoulou-Zormpala 2016). This chapter provides guidance for co-equal arts integration. Silverstein and Layne of the Kennedy Center explain that in arts integration, "Students engage in a creative process which connects an art form and another subject area and meets evolving objectives in both" (2020). *Creating* isn't the only artistic process in which a co-equal approach to integration is possible. The other three artistic processes of the arts standards, *Presenting/Performing/Producing*, *Responding*, and *Connecting*, also provide intersecting points for integration with other disciplines to cross curricular boundaries and deepen students' understanding.

Silverstein and Layne describe the practice of arts integration as one in which teachers approach the integration of the identified arts and other content areas equally in the instructional design, implementation, and assessment of the students' learning (2020). This co-equal approach to arts integration requires that teachers have discipline-specific knowledge, pedagogy, skills, and capacities in each of the content areas or co-teach with another educator with that knowledge. As an example, a dance teacher may partner with a mathematics teacher to design and teach an integrated unit on symmetry through the lenses of mathematics and dance. In this example the integrated approach to the concept of symmetry would provide students with beneficial social, inquiry-based, and physical learning aspects in both subjects.

In the co-equal approach teachers—alone or in collaboration—design instruction that combines one or more arts disciplines, utilizing the four artistic processes of the arts standards, the related student performance standards, and content from one or more other subject areas. Effective and intentional arts integration deepens and expands students' learning. To integrate successfully, the convergence of content areas must authentically connect the learning objectives in all subjects. For students to gain the value and benefit from arts integration, they need sequential, standards-based arts learning and instruction that utilizes effective arts integration approaches to hone each academic content area addressed.

"The arts produce a genuine synergy between content areas by engaging multiple models of inquiry."

—from *Renaissance in the Classroom: Arts Integration and Meaningful Learning* (Burnaford et al. 2001)

Arts Integration Considerations

The multifaceted nature of integrated teaching requires teachers to have the necessary knowledge, skills, planning time, strategies for accommodations or modifications as needed, and resources for planning and implementing effective arts integration. Arts integration instructional design crosses disciplinary boundaries and, as such, requires thoughtful selection of the corresponding standards to be addressed, choosing the effective integration approach, and clearly identified intended learning goals. Music education researcher and author Robert A. Duke reasons that for students to transfer their learning across disciplines or contexts, the teaching and structure of learning experiences must begin with "well-defined goals" (2005). Duke elaborates: "Teachers must ask themselves in the early stages of planning instruction not only 'Why is it important for students to learn this?' but also 'Why is it important for students to learn this *now*?'" (2005).

It is worth repeating that designing co-equal arts integration instruction requires understanding integration approaches and expertise in the content areas being integrated. Teachers focus on sequential learning in all subjects being integrated, plan opportunities to deepen student understanding, and utilize opportunities to move the learning forward. It is also essential to design and implement assessments providing evidence of student learning in the arts and all of the integrated content areas being addressed. To be an effective assessment, students need to understand the learning goals of the arts integrated instruction. Teachers should identify appropriate formative and summative assessment strategies and tools, then use them to create assessments that address student growth in the arts learning and integrated content. Assessments can be informal, formal, or a combination that provides the student and teacher constructive information on learning for all areas being integrated.

> "The use of arts integration and the creative process can lead teachers to discover the power of authentic assessments."
>
> —Cindra L. Ross, arts educator, photographer, and graphic designer (2008, 14)

Ensuring students can access standards-based integrated instruction requires carefully planned units or lessons using Universal Design for Learning principles and guidelines that support and accommodate the diversity and variability of learners. For students to understand the "why," "what," and "how" of standards-based integrated learning, instruction needs to provide students with opportunities to make connections from one discipline to another. Students are supported in making connections when standards, essential questions, and enduring understandings are aligned (Drake and Burns 2004).

When planning integrated instruction teachers may work with other educators. When collaborating with others, co-planning time is necessary. This planning can take place in a variety of ways. Educators might meet to plan together either physically or virtually. They might also plan individually and then meet later to combine and refine ideas. In whatever manner the planning takes place, including time for reflection prior, during, and after integrated instruction is essential for student learning.

Honoring Foundational Cultural Arts Schemas

In the *California Arts Standards* the arts are approached as five disciplines. In some societies and cultures, especially in music and dance traditions, the arts are not always conceptualized or practiced as separate arts disciplines within cultural schemas. In "A Cross-Cultural Perspective on the Significance of Music and Dance to Culture and Society: Insight from BaYaka Pygmies," Lewis provides insight into this integration or melding across arts disciplinary boundaries:

> In some societies there are no general terms for music and dance, but rather specific names for different performances that involve music and dance. When Japanese researchers first began to analyze dance apart from the specific repertoire to which it belonged, they had to invent a word for "dance" (Ohtani 1991). Seeger (1994) describes how the Suyá of the Amazon forest do not distinguish movement from sound since both are required for a correct performance. A single word *'ngere'* means to dance and to sing because, as the Suyá say, "They are one." (2013)

It is important for educators to understand and honor the foundational cultural arts schemas when addressing cultural art forms.

Three Types of Arts Integration: Multidisciplinary—Interdisciplinary—Transdisciplinary

In *Meeting Standards Through Integrated Curriculum*, Drake and Burns describe integrated curriculum in "its simplest conception ..." as "making connections" (2004). Drake and Burns offer that *making connections* through meaningful, well-designed integrated curriculum and effective instruction provides students opportunities to find relevancy and move beyond superficial learning—students can become "the producers of knowledge rather than consumers" (2004). The content and nature of authentic arts learning in dance, media arts, music, theatre, and visual arts, in addition to the arts standards' four artistic processes, offer rich opportunities for integration within the arts disciplines and with other content areas.

Drake and Burns identify three categories or types of integrated curriculum approaches that are useful when designing co-equal arts integration instruction: multidisciplinary, interdisciplinary, and transdisciplinary (2004). These curriculum design approaches provide options for planning enriched learning opportunities in the arts for students. To begin the process of developing an arts-integrated unit or lesson, teachers identify the type of approach that fosters student agency and best fits the learning objectives they have for their students in the content areas being integrated. When educators work to design integrated instruction through probing deeper and deeper into the selected disciplines and their related standards for connections, Drake and Burns found that the "boundaries of the disciplines seemed to dissolve abruptly" (2004). Understanding and identifying which of the three categories to use—multidisciplinary, interdisciplinary, or transdisciplinary— is important when considering combining learning of one or more arts disciplines with learning in other subject areas, or integration between the arts disciplines themselves.

Multidisciplinary

The multidisciplinary category focuses on the disciplines themselves and a connecting theme common to all disciplines. Teachers using multidisciplinary models identify and employ the standards from the selected disciplines to organize their instruction and determine a common theme. The learning goals, assessment, and instruction are aligned to the identified standards. They work together while accentuating student mastery of discipline procedures. Disciplinary skills and concepts are taught and can, at times, include interdisciplinary skill sets. The assessment of learning is discipline based, which may include a culminating activity that integrates the disciplines taught. Educators function as facilitators and resources for specialized disciplinary learning. Models included within this approach are interdisciplinary, service learning, learning centers, and fusion models.

Interdisciplinary

In the interdisciplinary type of integration, a teacher or multiple teachers identify common learnings that are found across the disciplines. Drake and Burns note that in

interdisciplinary approaches the "teacher also focuses on 'big ideas'" that contain concepts that transfer "to other lessons" (2004). Teacher(s) organize the curriculum around the common skills and concepts that are embedded in the disciplines' standards and connect the disciplines. While the identified interdisciplinary skills become the focal point of the learning, students are also using and honing disciplinary skills. Assessment within the integrated unit's lessons are interdisciplinary, addressing each of the selected disciplines. Students gain skills that cross disciplines to foster higher-level thinking and deeper comprehension of the concepts and essential understandings found across the disciplines.

"It was an initiation into the love of learning, of learning how to learn ... as a matter of interdisciplinary cognition—that is, learning to know something by its relation to something else."

Leonard Bernstein—composer, conductor, and author

Transdisciplinary

The third type, transdisciplinary integration, grounds student learning in a real-life context through a focus on students' questions, concerns, and acquisition of life skills. Drake and Burns note this category lends itself to project-based learning and using "student questions as the basis for curriculum" (2004). The disciplines in this model may or may not be specifically identified during the learning process for the students, as the focus is on real-life, solving problems, and acquiring of knowledge that is "interconnected and interdependent" (Drake and Burns 2004).

Students gain experience in applying knowledge and interdisciplinary skills as they obtain essential understandings across the disciplines. The teacher or teachers in transdisciplinary approaches function as "co-planners" and "co-learners" alongside the students. The assessment—similar to the interdisciplinary category, but with less emphasis on specific discipline learning—is focused on growing the students' interdisciplinary skills and understanding of cross-cutting concepts.

These three categories or types of integration provide design options when selecting an appropriate integration approach to advance toward the intended learning goals. The nuances of differences between the types of approaches call for attention to ensuring clarity of student learning goals. Once the approach to integration is decided, there are a variety of options in choosing a specific instructional design model that have emerged from practitioners using integrated approaches. Fogarty and Pete's *How to Integrate the Curricula* provides educators with additional insight by offering multiple models that can be useful when designing arts-integrated co-equal instruction (2009). These are not the only models that exist but can serve as examples for educators to consider when looking to add

arts integration lessons or units to their discrete, sequential, standards-based teaching of the arts disciplines. The next two sections of this chapter provide examples of integration approaches and models through the lens of elementary and secondary schooling levels. A model or approach may be presented in the elementary or secondary section, though the models and approaches can be effective at either level.

Arts Integration—Elementary

In the elementary classroom discrete arts teaching—either by the elementary generalist or the single subject arts teacher—can be complemented through intentional and strategic arts integration. For students to learn from standards-based, sequential, discrete, and integrated arts instruction, time to teach the arts within the school day and throughout the year is required; experiencing an occasional lesson does not provide students learning opportunities equal to sequential arts learning over time. The realities of elementary classroom time call for a thoughtfully crafted balance of discrete and integrated approaches to arts learning. Intentional and strategic integration can allow instruction in two content areas concurrently in the elementary classroom.

A key to the success of arts integration learning at the elementary level is ensuring all educators designing the instruction are supported through professional learning that addresses their needs. Professional learning that addresses the needs of multiple-subject elementary teachers' artistic content, artistic skills, confidence in teaching the arts, pedagogical, and integrated instructional design is critical to successful arts integration. Chapter nine, "Implementing Effective Arts Education," and appendix H, "Arts Education Professional Learning Resources," provide additional guidance, discussion, and resources related to supporting the professional learning needs of multiple-subject elementary teachers.

In school settings that have single-subject arts teachers, these arts teachers can be a resource to the multiple-subject elementary teachers by providing additional content expertise when needed to support arts-integration approaches. Additionally, local arts institutions such as museums, symphonies, artist communities, and university arts departments can provide additional content resources and arts expertise for elementary teachers.

Supported by the necessary professional learning, time, and resources, elementary teachers are able to meet their students' arts-learning needs and access the integrated approach or approaches that work best in their teaching context. They are also able to determine the needed instructional time and ensure quality learning time within their teaching context. Prepared with knowledge, confidence, and resources, elementary teachers become masters at designing and implementing effective and relevant discrete and integrated standards-based arts education for their students.

> **Note:** At the elementary level in schools without single subject credentialed arts teachers, the general classroom teacher is often the sole provider of arts education, in both discrete and integrated approaches. These teachers are fully authorized to teach the arts under their California Multiple Subject Preliminary or Clear credential although their level of expertise may vary. To be successful, classroom teachers need the content knowledge and pedagogy in the arts and the other subject areas they are integrating, knowledge in designing integrated instruction, and time for planning. For additional information on supporting elementary multiple-subject teachers, see the individual discipline chapters (Chapter 3, Dance; Chapter 4, Media Arts; Chapter 5, Music; Chapter 6, Theatre; Chapter 7, Visual Arts; and Chapter 9, Implementing Effective Arts Education).

Exploring Examples of Elementary Arts Integration: Shared Model

Elementary teachers are in a unique position to utilize a *multidisciplinary* approach to co-equal arts integration to connect their discrete instruction in the arts with other content areas to deepen and extend student learning. There are various models of multidisciplinary instructional design including shared, service learning, and learning centers. The shared model described in Fogarty and Pete's 2009 edition of *How to Integrate the Curricula* lends itself well to the elementary classroom.

The shared model provides multiple entry points for curriculum design and opportunities for co-teaching. This type of instruction can be designed by one or more multiple-subject teachers or single-subject teachers, multiple-subject teachers and guest artists, or single-subject elementary arts teachers wishing to incorporate two or more subdisciplines within their subject area. This model requires the thoughtful selection of at least two disciplines to identify and build upon authentic intersections within the selected disciplines. The educators then search for common big ideas across the disciplines in the shared model. The intersection of concepts or ideas drawn from each of the disciplines' standards then becomes the focus of the integrated instruction. Overlapping ideas, concepts, topics, attitudes, processes, procedures, or habits found within both disciplines are identified and used to inform student learning goals.

Figure 8.1: Shared Model
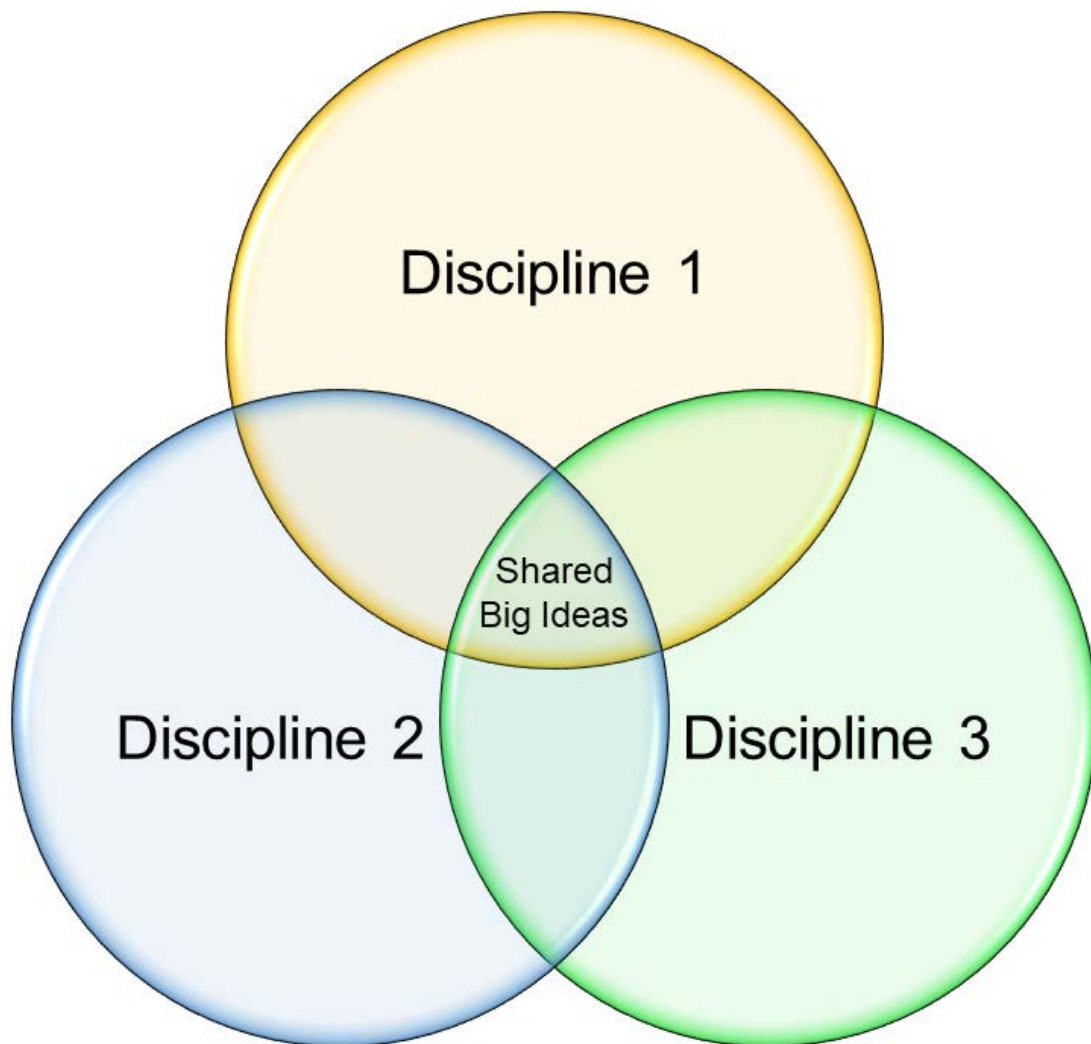
For example, designing instruction around the intersection of the cross-cutting concept of observing patterns in science with the process of "seeing" the visual arts element of pattern provides a rich convergence of concepts and skills. The disciplinary concepts are taught discretely in both subjects and then strategically combined to deepen and enrich student learning. The teacher(s) intentionally engages students in authentically combining the learned skills and concepts of observation, describing, and replicating of patterns from science and visual arts to create a scientifically and an aesthetically rigorous illustration or visual presentation on the concept of pattern.

The following provides a snapshot of an elementary classroom teacher and an elementary visual arts teacher, that teach the same students, utilizing the shared model in their planning of an integrated visual arts and science unit. The teachers are co-planning their integration focused on the cross-cutting process of seeing or observing, identification of patterns and details, and ability to communicate visually their observations or inspirations. Each teacher will then provide instruction within their own classroom, meeting throughout and after the duration of the unit to share, refine, and reflect upon student learning.

Ms. A. and Mr. B. teach at the same school and share the same fifth-grade students. Ms. A. is an elementary classroom teacher who teaches all the subjects and Mr. B. is the single-subject credentialed visual arts teacher at the school providing students with additional visual arts instruction. The school has established time each week for teachers to co-plan. Ms. A. and Mr. B. are meeting to see if there is a way to help students discover the connections between their learning with Ms. A. in science and their learning in visual arts.

Ms. A. shares with Mr. B. that in her fifth-grade classroom, in science, students are exploring the concept of patterns and how to observe and describe patterns as scientists. This learning cultivates their ability to demonstrate scientific understandings through developing models, such as illustrated diagrams. Ms. A.'s students are growing in their understanding of how to use models, working to achieve science standard 5-PS3-1, and gaining skills to develop and use models to describe phenomena. This is a performance expectation found within the Science and Engineering Practices: Developing and Using Models section of the *Science Framework for California Public Schools: Kindergarten Through Grade Twelve* (California Department of Education 2016).

In parallel instruction in Mr. B.'s visual arts class, the same students are honing their visual arts skills to identify, observe or "see" patterns, natural or human made, and recreate these patterns in a variety of contexts as artists. Mr. B. shares with Ms. A. that the students are expanding their ability to "Apply formal and conceptual vocabularies of art and design to view surroundings in new ways through art-making" (standard 5.VA:Cn10; Visual Arts *Connecting* artistic process, *Synthesize* process component [California Department of Education 2019]). Mr. B. shares that he examined the visual arts standards progression across the previous grade levels and, using assessments he created, identified gaps in the students' artistic learning. He recognized the need to provide additional instruction to address these gaps so that his students will gain age-appropriate drawing abilities. He shares that his students are progressing in sharpening their observation and drawing skills and increasing their understanding of the use of patterns and texture as structural elements of visual arts.

Ms. A. and Mr. B. continue to share and discuss their individual subject standards and related student learning objectives. They use a Venn diagram to find the overlapping academic language, processes, skills, and big ideas they want their shared students to learn.

They discover many overlapping visual arts and scientific topics, concepts, and components. A common objective found in their discrete disciplinary teaching is

supporting the students' abilities to include or create appropriate "visual displays" that enhance the development of main ideas or themes. This common connection grows out of the fifth-grade Speaking and Listening standard (SL.5.5) of the *California Common Core State Standards: English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects* (the arts; California Department of Education 2013, 28).

Mr. B. decides to provide the students within his class time with examples of artists and artworks that utilize the environment and textiles with specific attention to patterns and textures. He will also share works from artist–scientists that found inspiration from their scientific study or work. He plans to engage the students in the next level of learning in contour drawing to capture details and patterns in their artwork. When appropriate, he will use, along with visual arts academic language, terms from science he knows they are learning in Ms. A.'s classroom. He structures his instruction to help students discover how many artists observe, capture, and are inspired by natural objects and natural phenomena for creating artworks. He will ask the students to replicate in their sketchbooks the patterns they discover using their observation and drawing skills. The intentional skill-building activities of seeing and drawing will continue throughout the year so that students can strengthen their artistic skills and practice. The practice pieces captured in their sketchbooks will become inspiration for a later artwork in which students will have the choice of drawing, painting, photography, or printmaking.

Ms. A. structures her instruction to include an opportunity for the students to share their emerging artworks and developing skills of observational drawing learned in Mr. B.'s visual arts class. She also will share visual images captured by scientists that, while scientifically accurate, also have aesthetic elements. She will share scientific journals and notebooks that contain detailed drawings, sketches, and diagrams. She will invite the students to use their visual arts drawing and observational skills in the scientific context of observing to create illustrated diagrams and drawings in their science interactive notebooks.

Ms. A. and Mr. B. conclude their planning by setting dates to meet as they implement their plans to share progress, reflect upon and examine student learning in progress, and make any adjustments to plans as needed. They also set a planning date after the conclusion of the shared unit to review the resulting student work and plan next steps.

Note: Potential for Expanding the Integration

In the snapshot above, the integration involved visual arts and science. The multiple-subject elementary teacher could have expanded the integration to include mathematics. The teacher could identify related practices or standards in mathematics, for example, Mathematical Practice 7, Look for and Make Use of

Structure. This practice calls for students to "look closely to discern a pattern or structure" (California Department of Education 2014, 7).

The instructional approaches that include the content areas of science, technology, engineering, arts (dance, media arts, music, theatre, visual arts), and mathematics are often called STEAM. Multiple-subject and/or teams of single-subject teachers can plan together to design such multidisciplinary approaches.

Connecting Concepts

In the shared model a teacher or co-teachers determine learning goals and potential courses of action the students can explore by combining the connecting concepts and skills to transcend student learning across all disciplines. Effective shared integration instruction supports deep teaching and learning for transfer and requires sufficient planning time to move beyond superficial or artificial connections. If two or more teachers are collaborating on a unit or planning for co-teaching, dedicated shared planning time is needed for disciplinary conversations to include examining the two or more sets of standards; identifying potential "shared" concepts, skills, or techniques; developing learning goals and assessment strategies; and constructing the instructional lessons or units. A Venn diagram is a useful tool for narrowing and refining intersecting possibilities and to make sure all integrated lessons are universally designed. Teachers also need time to consider the sequencing and alignment of the discrete instruction in both areas that must take place prior to the integrated lessons. Teachers may discover that one of the pair must adjust their sequencing of instruction to create alignment that facilitates the integrated lesson or unit.

If a multiple-subject educator is working alone, planning time is still needed to identify the overlaps, sequence instruction, and create the learning opportunities in the shared integration. The individual teacher may need to seek out additional resources, expertise, and secure materials needed to plan or implement the integrated learning experience.

The arts disciplines combine well with each other and other subject areas in the shared model due to the learning process inherent in the arts. When implemented strategically and successfully, a shared model of integration helps students find coherence across their disciplinary learning. The snapshot below provides an example of one second-grade teacher's approach to selecting a variety of subject areas standards from which to develop a shared model dance arts integration unit.

A second-grade teacher has reviewed and selected a group of second-grade standards from dance, science, English language arts, and English language development to use in developing a shared dance arts integration unit of study. Table 8.1 below identifies the selected standards.

Table 8.1: Example of Selected Standards for a Shared Unit

Dance	Science	English Language Arts	English Language Development
Performing Process Component: *Express* **2.DA:Pr4** c. Select and apply appropriate characteristics to movements (e.g., selecting specific adverbs and adjectives and apply them to movements). Demonstrate **kinesthetic awareness** while dancing the **movement characteristics**.	**2-ESS2-3** Obtain information to identify where water is found on Earth and that it can be solid or liquid.	**RI.2.1** Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text. **RL.2.7** Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.	**ELD.2.** Part 1.A.BR.1 **Exchanging information and ideas** Contribute to class, group, and partner discussions, including sustained dialogue, by listening attentively, following turn-taking rules, asking relevant questions, affirming others, adding pertinent information, building on responses, and providing useful feedback.

The students in this class have acquired the necessary prior knowledge and skills needed in all four focus disciplines. The teacher has determined the unit will focus on movement characteristics and kinesthetic awareness in dance. Students will use their previous learning from their science studies of water and the different states that water could be found (solid, liquid, gas) depending on the temperature in different weather conditions as ideas for the creation of the dance phrase.

Students will progress through a series of integrated lessons leading to a summative performance assessment in dance. The unit will also have a series of formative assessment in dance, science, and English language arts. The summative assessment will ask students to collaboratively create a dance phrase that will demonstrate an appropriate selection and application of movements, locomotor or nonlocomotor, while safely moving through space that relate to their chosen adverbs and adjectives related to matter. Throughout the sequence of lessons, a variety of dance formative assessments—informal and formal—will provide the teacher and students evidence of students' abilities to move safely with other dancers in a variety of spatial relationships and formations with other dancers while sharing and maintaining personal space. The arts-integrated unit will provide students an opportunity to deepen their overall understanding of the shared concepts through cognitive and creative application of the subjects.

The following vignette is an example of a third-grade teacher capitalizing on the shared concept of shapes in visual arts and mathematics. In visual arts the students are growing in their drawing abilities and range of approaches they can use in creating works of art. Gaining abilities and sophistication in recognizing basic geometric shapes and their attributes within objects or images supports student learning in both visual arts and mathematics. The vignette focuses on an early aspect of the arts-integrated learning sequence.

Vignette: *Third-Grade Shared Model with Visual Arts and Mathematics*

CREATING—Anchor Standard 2: Organize and develop artistic ideas and work.

2.1 Enduring Understanding: Artists and designers experiment with forms, structures, materials, concepts, media, and art-making approaches.

Essential Questions: How do artists work? How do artists and designers determine whether a particular direction in their work is effective? How do artists and designers learn from trial and error?

Process Component: Investigate

Performance Standards: 3.VA:Cr2.1 Create personally satisfying **artwork** using a variety of artistic processes and **materials**.

Mathematics 3.G.1 Reason with shapes and their attributes.

1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can

define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

A third-grade teacher, Mr. K., plans the sequence of instruction in visual arts and mathematics aligning the learning sequence in both content areas. He uses integration to take advantage of the cross-cutting concepts and practices found in developing observational drawing skills through seeing the basic shapes within an object and recognizing shapes and their attributes in geometry.

Students are building their observational skills through practicing deconstructing images of animals in environments, such as a bird in a city tree, into elemental geometric shapes. They are also, in mathematics, building their understanding and abilities to recognize that geometric shapes have and may share attributes, and that the shared attributes can define a larger category of shapes.

Mr. K. projects an image of a blue jay perched on a branch of a city tree with buildings in the background. He asks students to find and name the basic shapes and their attributes that compose the bird, branches, tree, and buildings. As the students respond, Mr. K. prompts the students to describe the attributes using the appropriate academic language they have learned in visual arts and mathematics.

Mr. K. demonstrates through drawing on a blank piece of drawing paper, using a document camera, their responses and his own observations of the shapes within the image. He begins by drawing the round shape found within the image of the bird's head. He engages the students while drawing through prompts, asking specific questions such as, "Is the shape of the bird's head a perfect circle or does it lean to the right? Is the beak a large triangle? Does the position of the triangle, beak, I've drawn match the image?" He adjusts the drawing based on the students' responses. As he guides them through the image, he asks the students to identify the basic geometric shapes of the branch, tree, and buildings as he continues to add the shapes to the drawing. He supports the students as needed in identifying the shapes found within, and also in deconstructing larger shapes into smaller shapes.

Mr. K. prepares students to use new photographs as drawing references for their own exploration. He gives each table several images to choose from. He reminds students to start their drawing by looking closely to discover the geometric shapes found within the image, and lightly sketching the most definitive, recognizable, or biggest shapes within the object or image, adjusting as they work. The students work to add smaller shapes to complete the drawing of the deconstructed object. When students need more guidance, Mr. K. asks them where they see more shapes.

He asks the students to make a list of all the geometric shapes they have found. As needed, he reminds students to turn to a partner for suggestions about more shapes,

help in naming their geometric shapes, or adjustments to the drawing that might be needed.

The students engage in a gallery walk to view their deconstructed images. Mr. K. leads the students in a discussion about the qualities of their artwork and how observational drawing practice helped them see shapes in everyday objects. The students share their lists of shapes and discuss similarities and differences in the different photographs that were used. Mr. K. captures the students' reflections in a quickwrite, responding to the following prompts: *In what ways did you capture and recreate objects? What helped you identify and recognize the shapes you discovered?*

The following vignette is an example of a fifth-grade teacher using a shared model of instruction from a larger unit in the Creating process, focused on the Imagine process component. The timeframe is dependent on the length of each session and size of the class, so this learning sequence may span multiple class sessions. Students in the example are from two sub-disciplines of music: choral and instrumental.

The example supports developing artistically literate students through addressing a music Creating standard combined with a writing standard from the California Content Literacy Standards for Technical Subjects. The arts are considered technical subjects within the California Common Core State Standards. As such, the notion of "text" in technical subjects includes discipline-specific language and symbol systems. In music, teachers support students in learning to read and write (play and compose) in music using musical notation, standard English language, and often in languages other than English. See chapter one, "Vision and Goals for Standards-Based Arts Education," for a discussion of symbol systems of the arts as text and examples of text in the arts disciplines, and chapter two, "The Instructional Cycle," for additional discussion on texts and deriving meaning in the context of arts learning.

Music

CREATING—Anchor Standard 1: Generate and conceptualize artistic ideas and work.

Enduring Understanding: The creative ideas, concepts, and feelings that influence musicians' work emerges from a variety of sources.

Essential Question: How do musicians generate creative ideas?

Process Component: Imagine

Performance Standard: 5.MU:Cr1 b. Generate musical ideas (such as rhythms, melodies, and accompaniment patterns) within specific related tonalities, meters, and simple chord changes.

California Common Core State Standard, Fifth Grade: W.5.2 Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.

Ms. D. uses a shared model approach to combine a Creating music standard and an English language arts standard (California Content Literacy Standard for Technical Subjects) as the students work to compose (write) and perform in small groups or with partners. Ms. D.'s learning activities and creative process support English language development and the *California English Language Development Standards (ELD Standards)*. Ms. D.'s students will be engaged in collaborative conversations, share their ideas, and have other opportunities to interact with and through the English language and the language of music.

In the fall of the school year, choral and instrumental students are ready to begin collaboratively engaging in the process of composing. Ms. D. finds collaboration is a good launching point for future composing for instrumental or choral students throughout the school year. Ms. D. explains that the theme for the compositions will be the fall season and students will work within a small group to develop their musical piece. To provide all students with a bank of English language words and sounds related to the fall season, Ms. D. engages students in brainstorming on chart paper. The class shares thoughts, sounds, images, ideas, words, and phrases related to fall. The brainstorming session concludes, and Ms. D. hangs the charts in the classroom. Ms. D. encourages the students to add to the chart as they work and other words emerge.

The students are introduced to creating preliminary musical compositions through the combining of different pitches and rhythms. The groups self-select to compose their musical ideas for instruments as a choral piece or combined piece. The students

use standard musical notation to compose a technical language symbol system of music. Students in their collaborative groups of three or four compose and manipulate different pitches and rhythms to create an eight-measure draft composition in 4/4 time that represents the fall season.

Choral and combined groups additionally compose lyrics for their melodic line. These groups generate within their group's lyrics, selecting words or phrases from the brainstorming or language that emerges within the group.

As they work to develop their compositions, Ms. D.'s students develop their command of the English language as they generate and share their ideas and collaborate to merge ideas (an *ELD Standards* Mode of Communication). The students exchange and share information, notation, and ideas with other groups through oral collaborative conversations on a range of social (fall season) and academic (music) topics. This authentic collaboration within the process component of Imagine and in writing provides students opportunities to interact in meaningful ways (*ELD Standards* Part 1: Interacting in Meaningful Ways). Students engage in producing language using the academic language of music (*ELD Standards* C. Productive 12. Selecting and applying varied and precise vocabulary and language structure to effectively convey ideas.).

Ms. D.'s students will perform their draft compositions for the class either on their instruments, through singing their song, or through both playing and singing. As the audience, students will pay attention to each performance and provide feedback to the performing group. After each performance, Ms. D. will lead the "audience" in providing feedback to their peers on aspects of the composition that worked well, things that might be revised, and on areas that could be refined. Students have previous experience in providing feedback to peers and Ms. D. has established supportive feedback protocols, so the students need little guidance in this process.

Formative assessment occurs throughout the process as Ms. D. observes and, when necessary, provides guidance to students working collaboratively to compose, revise, rehearse, and perform. Ms. D. gains informal information on individual student progress in composing, working collaboratively, playing, and/or singing. Students will write a self-reflection on their creative process. Prompts will support student reflection on the struggles and successes they had in conveying the sense of the fall season through their compositions, the improvements they want to make, their compositional choices, and what they want to try when composing again in the future. This provides the students with a metacognitive opportunity to process their experience and Ms. D. with additional insight on students' self-perception. The knowledge about student learning gained from the formative assessments informs Ms. D.'s future instructional planning.

Exploring Examples of Elementary Arts Integration: Nested Model

The interdisciplinary arts integration approach is also effective at the elementary level. Integrated interdisciplinary instruction can be designed using a nested model. Fogarty and Pete define the nested model as one where multiple skills and standards drawn from two or more content areas are authentically clustered and combined through one topic or concept—in this model, the goal is to see "within" each subject area and teach to "… multiple dimensions to one scene, topic, or unit" (2009). When skillfully implemented, this design can increase learning from a lesson by focusing on natural grouping of multiple dimensions of learning and multiple standards.

The nested model's multidimensional emphasis is focused on one topic. Students use and connect their cognitive and social processes or technical skills from multiple disciplines on the single topic. The design of a lesson or unit with this model starts with identifying the arts-specific discipline area standard, the learning goals, the content focus of the lesson or unit, and the potential skill sets that naturally relate to the content and enhance the learning. One method to select and combine skills for nested integration is to examine the discipline-specific arts standards being taught and identify thinking, technical, process, and social skills found within those standards. Teachers then identify another arts discipline or content area that has related skill sets that "nest" around the selected arts focus.

The snapshot that follows provides an example of how an elementary teacher is thinking about using the nested model to design an integrated media arts and mathematics unit.

Snapshot: *Exploring Ideas for a Nested Integrated Media Arts and Mathematics Unit in Second Grade*

Ms. H.'s second-grade students have been working on telling time, writing time, and understanding the relationships of time (Mathematics 2.MD Work with time and money; 7. *Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.*). In their media arts studies the students have acquired the skills and knowledge and can create a media artwork. They are able to relate information through the media works that would be presented to an audience. As a class they are also getting ready for the annual open house in which the community members, families, and friends are invited to visit classrooms.

Ms. H. realizes this provides a real-world opportunity to nest aspects of student understanding and skills in media arts and math to synthesize their learning. Her idea is to engage the students in creating multiple stop-motion videos that demonstrate to the open house visitors what happens during a regular school day in their class. She thinks her students will be excited to share their films introducing the visitors to their classroom. In this way she can nest learning two media arts standards—2.MA:Pr6 (Identify and describe **presentation** conditions and audience and perform task[s] in
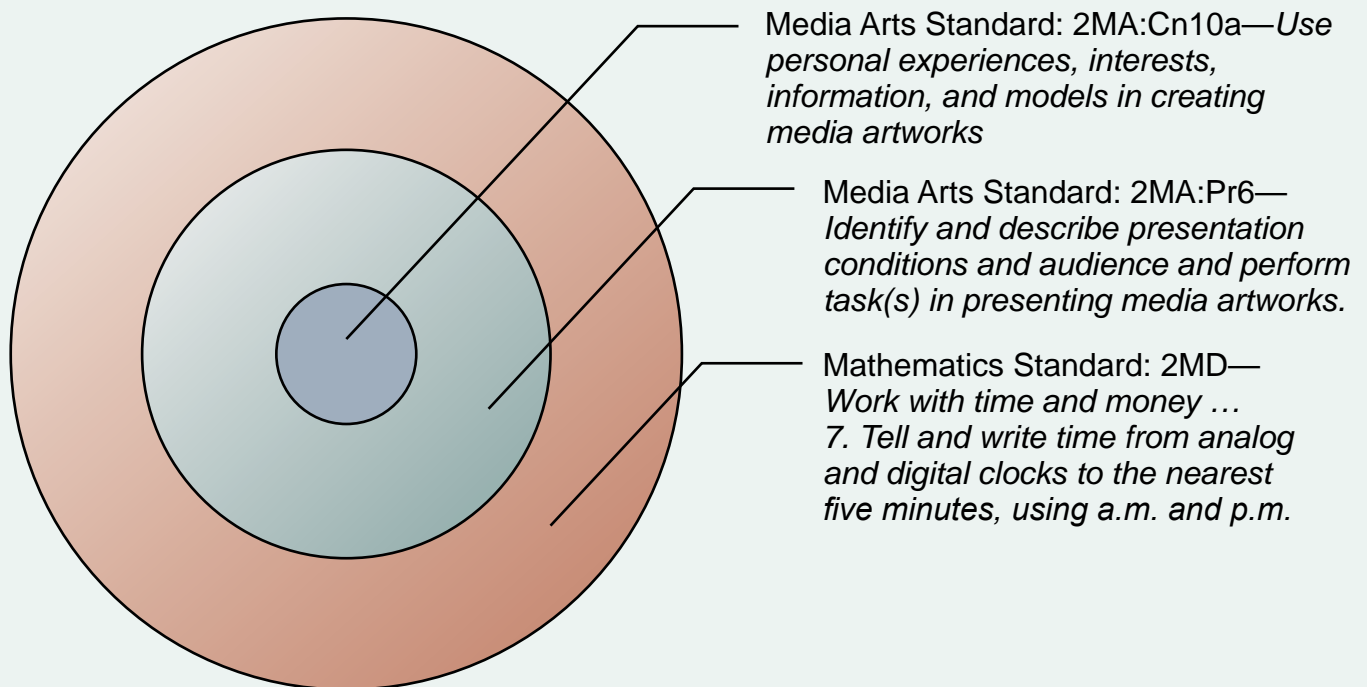
presenting media artworks.) and 2.MA:Cn10 (a. Use personal experiences, interests, information, and models in creating media artworks.)—within the context of learning two mathematics standards.

She envisions the students working in collaborative groups. Each group will have a specific time frame of the daily schedule. They will use their skills in math and media arts to create an initial storyboard of their video, gain feedback from others, revise, and then begin to create their images for the video. The groups will need to consider the variety of classroom visitors that will view their videos during open house. She realizes that this provides an opportunity to ask the groups to explain their choices when they present their storyboards. The videos will need to inform the viewers the actual class time their video is sharing and show through a bar graph where their specific time falls in the school day. Ms. H.'s media artworks criteria for the stop-motion videos will include guidelines for the artwork and indicate that the students must insert a picture of an analog clock showing the time of day. Next to the photograph, students will write the time to demonstrate their understanding of digital and analog time (i.e., 10:45 a.m.).

The more Ms. H. does her initial thinking, the more she feels her students will be excited about the task.

As she gets closer to starting to create the actual learning sequence, she thinks about what each of her students will need in order to be successful and what types of assessments she will use to determine achievement in both media arts and math.

Figure 8.2: Nested Standards Example

Media Arts Standard: 2MA:Cn10a—*Use personal experiences, interests, information, and models in creating media artworks*

Media Arts Standard: 2MA:Pr6—*Identify and describe presentation conditions and audience and perform task(s) in presenting media artworks.*

Mathematics Standard: 2MD—*Work with time and money … 7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.*

The nested model can be applied to a lesson or to an entire unit of instruction. The arts standards, which are based on artistic processes, are well-suited to the nested model and combine well with other content areas that focus on process, such as English language arts. This model, when used after initial instruction in each content area, provides opportunities for students to practice, refine, and enhance skills in new ways. It supports students in making connections and developing skills in multiple areas. This model can be used by one elementary teacher that has expertise in the multiple content areas or as a collaborative unit between two or more educators.

In whatever integrated approach or model elementary teachers choose, it is critical to identify clear co-equal learning goals, develop and implement effective assessments of all content areas being integrated, and plan the sequence of learning in all the content areas to ensure student success.

Arts Integration—Secondary

Arts integration at the secondary level provides avenues for students to build upon their elementary learning, deepen conceptual understandings, refine artistic practices, and bridge the compartmentalized learning that often exists within single-subject courses. As with the elementary level, designing and implementing effective secondary co-equal arts integration instruction requires:

- Attention to the individual standards and related learning goals
- Effective assessment strategies and tools for the content areas integrated
- Understanding effective and appropriate models of integration
- Sequencing instruction in all areas integrated
- Thoughtful planning
- Well-prepared educators
- Resources
- Time

Arts integration can take place within secondary single-subject arts courses in multiple ways. Secondary integrated arts instruction can be designed utilizing multidisciplinary, interdisciplinary, or transdisciplinary approaches. Integration opportunities can be created within the course alone, through collaborations with community cultural and artistic resources, working across arts disciplines on creative or community projects or performances, or with teachers of other content areas. In whatever manner the integration manifests for students, teachers will need time—either alone or in collaboration with others—to explore potential integrated ideas and learning goals, set timelines, and identify resources for implementation.

As with elementary teachers, secondary teachers need professional learning to build and support their understanding of the various co-equal arts integration approaches, models,

and arts integration purposes. Professional learning can also build capacity to choose and use appropriate assessment strategies, understand what student demonstrations of learning look like in each of the disciplines integrated, and ensure assessments align with identified integrated learning goals.

Exploring Examples of Secondary Arts Integration: Interdisciplinary Approach

Secondary teachers may choose to use an interdisciplinary approach to designing co-equal arts integration to advance student learning in variety of contexts or settings. An interdisciplinary approach focuses on the common big ideas or concepts that can connect, transcend, and support transfer of learning transferring across disciplines. Secondary teachers organize the instruction around common aspects of their disciplines found within their respective standards. The following high school snapshot provides insight into the *early planning* stages of a collaborative project by two arts teachers (dance and theatre) using the nested model.

Snapshot: *Early Planning Stages for High School Dance and Theatre Integration*

Each spring, the theatre and dance teachers at a high school integrate dance and theatre learning through a collaborative project. The project provides their students with the opportunity to pull from the knowledge, skills, and creative abilities they have developed to research, develop, refine, and perform an original collaborative artistic work. This year the teachers have decided to have their students create an original theatre work (devised theatre) based on student choice of a contemporary or historical event. At their first planning session both teachers begin an initial brainstorm to identify and share some possible primary discipline standards that will focus the collaboration. The table below captures their first brainstorm.

Dance Standards	Theatre Standards
Acc.DA:Cr1 a. Synthesize content generated from stimulus materials to choreograph **dance studies** or dances using original or **codified movement**.	**Adv.TH:Cr2** b. Collaborate as a creative team to discover artistic solutions and make interpretive choices in a **devised** or **scripted drama**/theatre work.

Dance Standards	Theatre Standards
Acc.DA:Cn10 b. Use established research methods and techniques to investigate a topic. Collaborate with others to identify questions and solve **movement problems** that pertain to the topic. Create and perform piece of choreography on this topic. Discuss orally or in writing the insights relating to knowledge gained through the research process, the synergy of collaboration, and the transfer of learning from this project to other learning situations.	**Acc.TH:Pr4** b. Identify essential text information, research from various sources, and the director's concept that influence character choices in a drama/ theatre work.
Acc.DA:Cr3 a. Clarify the **artistic intent** of a dance by refining **choreographic devices** and **dance structures**, collaboratively or independently using established **artistic criteria**, self-reflection and the feedback of others. Analyze and evaluate impact of choices made in the revision process.	**Acc.TH:Re9** a. Analyze and assess a drama/theatre work by connecting it to art forms, history, culture, and other disciplines using supporting evidence and criteria.

Prior to their second planning session, each teacher met with an English or history colleague to gain insight into possible contemporary or historical topics and related texts, primary sources, and other types of materials to stimulate the students' creative work. The dance and theatre teachers share what they learned from their conversations to develop a list of possible topics and related sources.

They decide that the students, as a group, will have the option to come to an agreement on the topic either from the potential topics or identify another topic. The students will collectively determine their source materials for research. They can choose to begin their research with texts or primary sources—such as "Letter from Birmingham Jail," by Martin Luther King, Jr.; *The Diary of a Young Girl*, by Anne Frank; the Emancipation Proclamation, issued by Abraham Lincoln; "Take the Tortillas Out of Your Poetry," by Rudolfo Anaya; *Universal Declaration of Human Rights*, from the United Nations; *The Grapes of Wrath*, by John Steinbeck; and *The Namesake*, by Jhumpa Lahiri—or students can identify other credible source materials to use in their research.

In their next planning session, the dance and theatre teachers will review and add or revise their identified standards as needed. The teachers will then begin to determine the academic skills the students have developed from their study of English language

arts and history, along with their discipline, academic, and technical skills in dance and theatre that will be "nested" within their instructional design. The project's design will ask students to employ multiple learned skills including researching, imagining, inferring, summarizing, and critiquing as they create and then perform their collaborative work. The project will also provide students opportunities to purposefully utilize and practice their lifelong thinking and social skills, including collaborating, seeking consensus, solving problems, resolving conflict, and communicating.

Exploring Examples of Secondary Arts Integration: Transdisciplinary Approach

Secondary students have acquired skills, knowledge, interests, and abilities in many subject areas. Opportunities provided through transdisciplinary arts integration provide students avenues to apply and build upon those capacities through projects or performances. Secondary teachers from multiple content areas or departments collaborate to engage their students in real-life community or school-based projects that are relevant to the lives of their students. Transdisciplinary arts integration focuses on student questions and concerns and supports them in acquiring life skills. Teachers across disciplines function as co-planners and co-learners alongside the students.

The following vignette illustrates a middle school teaching team, which includes the media arts, science, history–social science, and health teachers. This group of teachers collaborates throughout the year, integrating all subjects equally. They have recognized their students' interest in investigating the local environment related to their concerns of water pollution in the creek behind their school and the opportunity media arts provides to engage students. They have decided to design a transdisciplinary unit of instruction growing out of their individual discipline standards and their students' interests.

Vignette: *Middle School Transdisciplinary Arts Integration Connecting Science, Health, History–Social Science, and Media Arts Standards with Environmental Principles and Concepts*

During a middle school faculty meeting, a small team of teachers notices and recognizes that their students share a strong enthusiasm for investigating the local environment on campus and in the nearby community. They realize that students are especially concerned about the polluted water they discovered in the creek that runs behind the school. The teachers decide to meet further to share and explore the prior learning students have in each discipline and exchange ideas about a possible integrated instructional unit of study. Each teacher shares with the team what students learned in the first trimester in their courses:

Science: Students investigated human impacts on Earth systems by taking water samples at a local creek where they discovered high levels of fecal coliform bacteria (potentially causing diseases). They noticed a pattern: as human population in an area grows, negative impacts on Earth increase (MS-ESS3.C and Environmental Principles and Concepts [EP&Cs] IV). Students speculated that the same problems might occur with the growth of their community (EP&Cs II).

Health: At the end of the first trimester, health instruction focused on personal and community health, specifically: identifying ways that environmental factors affect our health (Health 7–8.1.9.P) and identifying human activities that contribute to environmental challenges (Health 7–8.1.10.P and EP&Cs II).

History–Social Science: Students examined the importance of the great rivers and traced the political and social struggles over water rights (HSS 8.8.4. and EP&Cs V).

Media Arts: Students learned and practiced applying focused creative processes, such as using divergent thinking; structuring and critiquing ideas, plans, prototypes, and production processes; refining and improving media arts works accentuating stylistic elements reflecting their understanding of purpose, audience, and place; integrating multiple contents and forms to convey specific themes or ideas, such as those involved in their projects; and strategizing and collaboratively communicating while producing media arts works.

After sharing all of the students' prior learning, the teaching team sees clear potential for collaboration and decides to design a transdisciplinary arts-integrated instructional sequence for the second trimester. They want to give their students the opportunity to apply what they have been learning in media arts, science, history–social science, and health to a real-life environmental problem that the students recently discovered in science class when learning about ESS3.C (Human Impacts on Earth Systems) and EP&Cs II (the functioning and health of ecosystems are influenced by their relationships with human societies).

As their first step in designing the transdisciplinary unit, the teachers identify the standards from each of the disciplines on which they will focus. They choose to focus on the following standards and EP&Cs.

Science Standards

MS-ESS 3–4

Disciplinary Core Ideas—ESS3.C: Human Impacts on Earth Systems: Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.

MS-ETS1 Engineering Design

Disciplinary Core Ideas—ETS1.A: Defining and Delimiting Engineering Problems: The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.

Crosscutting Concepts—Cause and Effect: Cause and effect relationships may be used to predict phenomena in natural or designed systems.

Science and Engineering Practices—Engaging in Argument from Evidence: Construct an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

Health Standards

7–8.1.9.P Identify ways that environmental factors, including air quality, affect our health (Essential Concepts).

7–8.1.10.P Identify human activities that contribute to environmental challenges (e.g., air, water, and noise pollution) (Essential Concepts).

7–8.6.1.P Establish goals for improving personal and community health.

7–8.6.2.P Design a plan to minimize environmental pollutants, including noise at home and in the community (Goal Setting).

7–8.8.2.P Demonstrate the ability to be a positive peer role model in the school and community (Health Promotion).

History–Social Science Standard

8.8.4. Examine the importance of the great rivers and the struggle over water rights.

Media Arts Standards

CREATING—Anchor Standard 3: Refine and complete artistic work.

Enduring Understanding: The forming, integration, and refinement of aesthetic components, principles, and processes creates purpose, meaning, and artistic quality in media artworks.

Essential Questions: What is required to produce a media artwork that conveys purpose, meaning, and artistic quality? How do media artists refine their work?

Process Component: Construct

Performance Standard: 8.MA:Cr3 a. Implement **production processes** to integrate content and **stylistic conventions** for determined purpose and **meaning** in media arts productions, demonstrating understanding of associated **aesthetic principles**, such as theme and unity.

PRODUCING—Anchor Standard 6: Convey meaning through the presentation of artistic work.

Enduring Understanding: Media artists purposefully present, share, and distribute media artworks for various contexts.

Essential Question: How does time, place, audience, and context affect presenting or performing choices for media artworks?

Process Component: Practice

Performance Standard: 8.MA:Pr6 a. Design the **presentation** and distribution of media artworks through multiple formats and/or **contexts** considering previous results on personal growth and external effects.

CONNECTING—Anchor Standard 10: Synthesize and relate knowledge and personal experiences to make art.

Enduring Understanding: Media artworks synthesize meaning and form cultural experience.

Essential Questions: How do we relate knowledge and experiences to understanding and making media artworks? How do we learn about and create meaning through producing media artworks?

Process Component: Synthesize

Performance Standard: 8.MA:Cn10 a. Access, evaluate, and use internal and external resources, such as cultural and societal knowledge, research, and exemplary works, to inform the creation of media artworks.

b. Explain and demonstrate how media artworks expand **meaning** and knowledge, and create cultural experiences, such as local and global events.

CONNECTING—Anchor Standard 11: Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding.

Enduring Understanding: Media artworks and ideas are better understood and produced by relating them to their purposes, values, and various contexts.

Essential Questions: How does media arts relate to its various contexts, purposes, and values? How does investigating these relationships inform and deepen the media artist's understanding and work?

Process Component: Relate

Performance Standard: 8.MA:Cn11 a. Demonstrate and explain how media artworks and ideas relate to various **contexts**, purposes, and values, such as democracy, environment, and connecting people and places.

b. Analyze and responsibly interact with media arts tools, environments, and **legal** and **technological contexts**, considering **ethics**, **media literacy**, social media, and **virtual worlds**.

Environmental Principles and Concepts

Principle I: The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

Principle II: The long-term functioning and health of terrestrial, freshwater, coastal, and marine ecosystems are influenced by their relationships with human societies.

Principle III: Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

Principle IV: The exchange of matter between natural systems and human societies affects the long-term functioning of both.

Principle V: Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

The Culminating Assessment Task

The teachers begin to exchange ideas and brainstorm ways to assess students' discipline-specific knowledge and skills related to selected standards and EP&Cs of science, health, history–social science, and media arts. The teaching team recognizes that it will be important to assess students on a few "big idea" questions. To accomplish this, they create a culminating assessment task with a rubric for evaluation and draft a series of writing prompts that will facilitate student reflection. These prompts are:

- In what ways were your media artworks effective toward resolving the campus water pollution issue?
- What factors contributed most significantly to the effectiveness of your media artworks?

- What factors may have limited your success toward achieving a resolution to the pollution problem?
- What modifications or changes would you make to your strategies when working on future community issues?

With the standards and EP&Cs selected and assessment determined, each member of the teaching team drafts initial thoughts about how they could connect their discipline-specific standards to the polluted water the students discovered in the creek by the campus. After several conversations, the teachers decide to initiate the unit of study by introducing their ideas about the potential project to each of their classes.

With guidance from their science, health, history–social science, and media arts teachers, students decide that they want to inform and engage community members and local decision makers to resolve the water pollution problem on their campus. Based on the skills and knowledge they gained in media arts earlier in the year, students discuss how they could most effectively and artistically convey information about the scope, scale, and geographical extent of the water pollution problem. Students begin to work in collaborative groups to plan how to most effectively engage decision-makers and the community at large to explain and encourage through media arts works the use of the environmental solution they developed with their science and health teachers.

As students work through this initial ideation stage, it becomes evident that the student teams have a variety of perspectives based on their own knowledge and experiences within the societal, cultural, and historical context of the neighborhoods where they live. As a result, the teachers ultimately decide that students may work in collaborative teams or as individuals to design and produce their media arts works related to the science, health, and societal aspects of the water pollution issue.

Each teacher is responsible for guiding different aspects of this collaborative unit within their classroom.

Science: Using the research and discoveries from the first trimester, students identify criteria by which to evaluate possible solutions and various constraints they must account for when designing and comparing alternative solutions to the fecal coliform problem (ETS1.A. and EP&Cs V). Students choose what they believe to be their most beneficial design solution, which prepares them for the work in their media arts class in which they will determine how to convey this solution in a meaningful way.

Health: Students design a plan to minimize environmental pollutants, including noise at home and in the community (Health 7–8.6.2.P) (EP&Cs V), which further prepares students in media arts to synthesize and relate knowledge and personal experiences to make art by accessing, evaluating, and using internal and external resources to inform the creation of media arts works.

History–Social Science: Having examined the importance of the great rivers and the struggle over water rights (HSS 8.8.4.) (EP&Cs V) during the first trimester, the students investigate further into the socioeconomic and legal perspectives and how they influence this local water issue. Students consider examples of the economic, political, legal, and cultural factors that play a role in decisions about water rights and pollution (EP&Cs V). This prepares students to develop artistic ideas and works with societal, cultural, and historical context to deepen understanding that can inform and encourage community members and local decision makers to work toward resolving the water pollution problem on campus.

Media Arts: The investigation into water pollution culminates in media arts class. Students use what they learned last trimester about conveying meaning through the presentation of artistic work to plan how they would engage with the appropriate audiences to share, explain, and encourage the use of the environmental solution that they have developed in science, health, and history–social science. Students use their cultural and societal knowledge and research to create artworks that encourage community members and local decision-makers to resolve the water pollution problems and improve personal and community health (EP&Cs I and V).

Throughout the process of designing and implementing this integrated unit of study, the teaching team consciously and deliberately encourages and supports student inquiry, providing an opportunity for student agency in making decisions about how they could most effectively apply all they were learning and become active citizens engaged in making their community a healthier place to live.

Secondary Students Benefit from Transdisciplinary Integration

The focus of transdisciplinary integration on grounding student learning through a "real-life context" is well-suited for secondary students. In the vignette above the students could have also interacted and worked alongside experts in the field. The addition of experts is an element in Fogarty and Pete's expanded network model of integration that works well within the transdisciplinary approach at the secondary level (2009). In an expanded network model, teachers collaborate to combine basic elements from the selected disciplines to create authentic learning projects or performances like the previous media arts vignette. The network approach expands students' learning opportunities and their overall experience by utilizing an expert or multiple experts, which provides added real-life value for the students at the secondary level.

Student learning occurs in the network model as the students work together with the expert on real-world projects. For example, students from theatre, music, dance, visual arts, and media arts classes collaborate with a professional lighting designer to produce a theatrical production or a schoolwide exhibition of student work. They

provide networking opportunities for the theatre students as they explore the full range of production aspects. Learners in network models discover the interrelationships and connectedness among different disciplines, gain insight into careers, and see the operational functioning of their disciplines in real-world situations.

In the following snapshot a team of teachers at a designated science, technology, engineering, arts, and mathematics (STEAM) middle school are exploring how to use the network model of transdisciplinary integration to design their next STEAM collaborative performance task.

📷 **Snapshot:** *Middle School—Early Stages of Preplanning for a Secondary Transdisciplinary Network STEAM Performance Task*

At a designated STEAM middle school, teachers are organized into teams of discipline-specific teachers. Teams work together at various times throughout the year to design collaborative transdisciplinary instruction leading to an integrated performance task. Teams always start planning well in advance of the projected implementation. The school has designated time for planning to ensure teams have adequate time to collaboratively plan, prepare, and reflect on student learning before, throughout, and after implementation.

One of the teams consists of a science teacher, a mathematics teacher, a visual arts teacher, and an English language arts teacher. They are about to begin planning for their next collaboration. They meet at their weekly collaborative planning time to begin thinking about the design of their third collaborative integrated STEAM performance task of the year. The teachers will draw from their various individual disciplinary standards to focus the collaborative project. The students will be asked to integrate and use the knowledge and skills they have acquired in the individual subjects to address the project's authentic real-world performance task. It will be structured so that students work collaboratively in groups on the task.

In the upcoming task, the teachers want to expand their integrated approach by including disciplinary experts from the community to work alongside the students. This will provide opportunities for their students to network and learn from the professionals. They brainstorm a list of potential big ideas growing out of the pre-identified individual disciplinary student standards and learning goals, time constraints, and resources. They then begin a list of potential assessment strategies to explore at the next meeting.

The teachers discuss potential experts that could be asked to collaborate and work with the students. They generate a list of experts that connect to their preliminary ideas. The brainstormed list includes a local mural artist, a local marine biologist, a parent that

is an engineer for an immersive theme park, and a theatre professor who also directs the local university's children's theatre group that often performs at the school.

The teachers end their meeting agreeing that at their next planning session, they will narrow their ideas, begin the assessment design, confirm the expertise needed, and begin to contact the experts.

Figure 8.3: Example of Potential Experts in Network Model
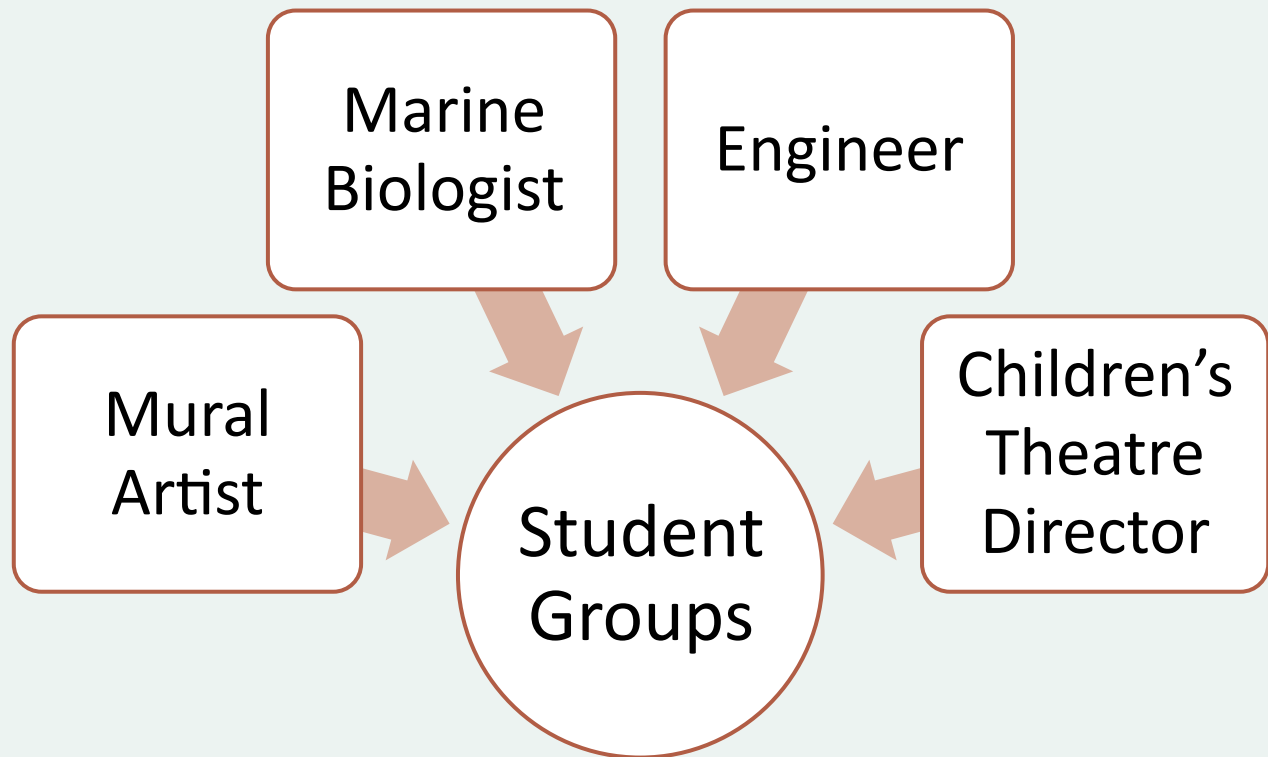
Attentiveness to Students' Arts Learning

Students need thoughtful, well-planned, and implemented instruction that connects their learning across many subjects and prepares them for life in a global, interconnected world. It is critical to understand that integrating content areas in a co-equal approach is not a replacement for specific discrete instruction in any content area. When choosing a model of co-equal integration, the purpose must be clear and the model aligned purposely. The goal should be authentic and co-equal student learning in each content area addressed.

The skills and habits gained, personal agency, and joy growing out of learning in the disciplines of dance, media arts, music, theatre, and visual arts contribute and connect to the whole of a person. Connecting arts learning to other content areas in this way supports students as they continue to learn, thrive, and navigate their world.

The overarching goal of co-equal arts integration is to maximize student learning outcomes in the arts and other subject areas. At times, lessons that are called "integrated" are not actually integrated because they use a process or technique from an arts discipline without providing students with foundational instruction in that arts discipline. Silverstein and Layne label the curriculum *arts-enhanced* when it uses the arts as "a device or strategy to support other curriculum areas, but no objectives in the art form are explicit" (2020). An example of an arts-enhanced activity is asking students to "illustrate" a story as a possible part of a book report or language arts project without prior visual or media arts instruction. Asking students to make marks on paper or a digital tablet to capture or "illustrate" details, such as a sequence of events or actions found in the story, can be useful in providing insight for the teacher on how students understood the story, their level of attention to details in the text, and their comprehension of events. However, if the students have not had prior visual or media arts instruction on the elements of visual arts composition nor acquired and practiced the skills needed in drawing or using a digital mark-making tool, the illustration activity is not a co-equal integration of visual or media arts. In this example, the addition of creating an illustration to the language arts task without goals for the arts learning does not advance the students' arts learning. The images students created can be assessed through the lens of English language arts but not as an indication of a student's capacities or learning in visual or media arts.

The Value of Informal Conversations

While professional learning is a necessary component to support teachers who are engaging in co-equal arts integration, informal conversations between elementary multiple-subject classroom teachers—who wish to improve their approach to designing and using integrated instructional practices but may not have a background in a particular arts discipline—and a school or district's single-subject arts specialist can also be helpful. For example, if an elementary classroom teacher wants to increase the instructional value of the often-used comprehension strategy of asking students to illustrate a story they have read, they might share their goal of providing discrete media arts or visual arts instruction with a single-subject arts specialist prior to asking students to illustrate a story. The simple question, "How can I help my students when I ask them to illustrate the story?" could lead to a discussion of aspects of the standards, such as enduring understandings and essential questions, and sharing academic artistic terminology that might be used in the integration. This conversation might also provide an opportunity to clarify how to apply strategies commonly used in other content areas in the context of a media or visual arts lesson. A quick informal conversation can lead to a feeling of empowerment for what might be implemented immediately and may also yield a positive longer-term result, such as continuing the conversation and gaining more formalized support for this type of capacity building from district administration.

Examples of Arts-Enhanced Activities

Examples of arts-enhanced activities—activities using a process or technique from an arts discipline without providing students with foundational instruction in that arts discipline—can be found across all the arts disciplines. Asking students to do the following activities does not require them to have prior learning in music, theatre, or dance:

- Students singing songs to remember specific content, such as the multiplication tables or the capitals of the states
- Students "acting out" or pantomiming vocabulary words or events
- Students dancing to music

These types of activities can act as a hook to engage students, help students remember details, and provide quick ways for the teacher to check for understanding, but only use the art discipline as a tool to assist in learning. An arts-enhanced approach can sometimes be misunderstood, as it may appear that the students are learning in the arts. This can give the mistaken impression to students, parents, and community members that arts learning has occurred. If the use of the arts does not build upon discrete arts learning, include identified arts learning goals and assessments, or has not been intentionally co-equally integrated, it should be made clear that the arts are being used as a teaching strategy to increase student engagement in other subject areas. Making the intended learning goals of such activities clear helps students and others understand the purpose of the activity. To move an arts-enhanced activity closer to a co-equal arts integrated lesson, it is necessary to ensure foundational learning and skill development in the artistic process of the arts discipline, aligned learning objectives, and assessments for the subjects being integrated.

Potential Drawbacks

Potentially harmful outcomes of poorly designed or implemented arts activities or activities that use the arts without teaching the content can occur when students are not perceived as successful in their singing or acting as other students when put in these situations. Some students may be seen as more successful or creative, possibly due to prior learning in the arts or private lessons. This informal identification of students by other students or educators, through well-intentioned comments such as "You are so talented," or "You are such an artist," can lead seemingly less-successful students to feel and believe they are not creative. Students, without the advantage of prior learning in the arts, begin to think they lack the capacity to learn in the arts and this can lead to developing a fixed mindset around an unfounded sense of lacking artistic ability. In the worst cases this unfounded self-belief about a lack of ability to learn in the arts can stay with them through adulthood. "I'm not creative," "I can't dance," or "I can't draw," are common reactions of people of all ages that have not had the learning opportunities provided by quality, standards-based, sequential, comprehensive arts education.

Conclusion

"In order to accurately depict Apollo scenes, events, and images in my paintings, I meticulously construct physical scenes using models of astronauts, the lunar module, the moon rover, and Surveyor. NASA's office moon photos are studied so that the craters and moon rocks are placed where they should be. A special studio light is positioned so that the direction and length of the shadows are exactly as they would have existed on the moon.

"My preparation for a new painting is almost as meticulous as the training for my own moon landing."

—Alan Bean, astronaut and artist (2018)

The arts disciplines "allow students to experience awe and wonder at what they are learning" (Sotiropoulou-Zormpala 2016). Through thoughtful and intentional co-equal arts integration, students are offered powerful and appealing pathways to deepen learning. To reach its full potential, arts integration must not be in place of, but *combined with* discipline-specific, standard-based, comprehensive arts education (teaching and learning).

Intentional and strategic planning, effective instruction, and assessment that equally combines arts concepts, skills, and content with learning in other subject areas advances the potential for students. Their integrated learning can transcend discrete subject-specific boundaries and synthesize into a new unified whole. Artist and astronaut Alan Bean found painting to be a way to express his experiences on the moon. Similarly, artistically literate students can combine learning to create and communicate the intersections they discover. Arts integration transcends disciplinary boundaries, supporting California students in connecting and applying their discrete disciplinary learning within and across subjects.

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