Goals

- Why proficiency based arts standards?
- Why add PreK-12 Design Thinking Standards?
Draft
College- and Career-Ready Standards for Design Proficiency

South Carolina Department of Education
Columbia, South Carolina
2017
Design Education

Creating Thinkers to Improve the World
Standards Writing Teams

- Dance
- Theatre
- Visual Arts
- Media Arts
- General Music
- Instrumental Music
- Choral Music
- Design
Why do learners need to be college and career ready in the arts?

Arts-Related Businesses - Employ over 78,000 People
Why do learners need to be proficient in the arts?

PROFILE OF THE South Carolina Graduate

WORLD-CLASS KNOWLEDGE
- Rigorous standards in language arts and math for career and college readiness
- Multiple languages, science, technology, engineering, mathematics (STEM), arts and social sciences

WORLD-CLASS SKILLS
- Creativity and innovation
- Critical thinking and problem solving
- Collaboration and teamwork
- Communication, information, media and technology
- Knowing how to learn

LIFE AND CAREER CHARACTERISTICS
- Integrity
- Self-direction
- Global perspective
- Perseverance
- Work ethic
- Interpersonal skills

© SCASA Superintendents’ Roundtable
World-Class Knowledge

- Arts courses enable learners to be creative in their approach to problem solving and to visualize concepts in new ways.

World-Class Skills

- Artistic processes develop critical thinking and problem-solving skills as learners create, refine, and reflect on their work and the works of others.
- Through collaborative arts experiences learners acquire skills necessary to communicate effectively as part of a team.

Life and Career Characteristics

- Rigorous quality arts experiences require learners to persevere through experimentation, repetition, and mastery of their arts discipline.
Learner-centered  
Proficiency-Specific  
Clearly Defined  
Assessable
<table>
<thead>
<tr>
<th>Novice</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>**Low-**Learners have little to no prior experience and are at the beginning stages of learning. Learners follow artistic rules. They shadow and mimic.</td>
<td>**Low-**Learners see some patterns, artistic principles, and make connections with a limited skill set.</td>
<td>**Low-**Learners solve predictable artistic problems and make decisions on their own based on an acquired skill set. Learners create by combining skills with artistic principles beyond themselves and their immediate world.</td>
</tr>
<tr>
<td><strong>Mid-</strong> Learners have some knowledge of basic vocabulary in a specified arts content area.</td>
<td><strong>Mid-</strong> Learners use a working vocabulary in a specified arts content area to make artistic decisions.</td>
<td><strong>Mid-</strong> Learners can use an artist’s vocabulary in a specified arts content area.</td>
</tr>
<tr>
<td><strong>High-</strong> Learners begin to apply prior experience and make connections to new learning.</td>
<td><strong>High-</strong> Learners can find evidence to support and apply artistic decisions.</td>
<td><strong>High-</strong> Learners can make and defend judgments based on internal evidence or external criteria.</td>
</tr>
</tbody>
</table>
Draft Terminology

Artistic Process

Standard
How the strands are broken up?

Benchmark
What does the standard look like at defined proficiency levels?

Indicator
What are the manageable steps that lead to benchmark attainment?

Sample Learning Target
How does it look in the classroom?
What does the learner need to do to attain the goal?
PreK-12 Design Education, Creativity and The Corporate World

Robin Vande Zande
Kent State University
What is Design Education?

a Short Primer ...........
*DESIGN BRIDGES THE SCIENCES AND ART

*DESIGN IS ABOUT FUNCTION AND STYLE
Product design
Communication Design
Interactive Design
Design is part of Everyday Life
Ordinary to extraordinary .........
The Design Process

**Define Design Problem:** Who, what, where, when, why, and/or how

**Investigate:**
Interview, investigate, research Internet, articles, and books, observe, and/or role-play.

**Develop Ideas:**
Brainstorm or mindmap, rough sketch, rapid-prototype.

**Evaluate and Revise:**
Use comments from audience and personal reflections to determine effectiveness and make changes needed.

**Present:**
Show, demonstrate, explain the details of the final solution (and process stages).

**Create Prototype:**
Create finished product and test according to criteria.
Social Responsibility

Enhance Life

Improve the Economy
### Artistic Processes: Creating - *I can conceive and develop new design ideas and work.*

**Anchor Standard 1: *I can conceive and develop a design challenge.***

<table>
<thead>
<tr>
<th>Novice Low</th>
<th>Novice Mid</th>
<th>Novice High</th>
<th>Intermediate Low</th>
<th>Intermediate Mid</th>
<th>Intermediate High</th>
<th>Advanced Low</th>
<th>Advanced Mid</th>
<th>Advanced High</th>
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</thead>
<tbody>
<tr>
<td>Benchmark De.NL.CR.1</td>
<td>Benchmark De.NM.CR.1</td>
<td>Benchmark De.NH.CR.1</td>
<td>Benchmark De.IL.CR.1</td>
<td>Benchmark De.IM.CR.1</td>
<td>Benchmark De.IH.CR.1</td>
<td>Benchmark De.AL.CR.1</td>
<td>Benchmark De.AM.CR.1</td>
<td>Benchmark De.AH.CR.1</td>
</tr>
<tr>
<td>I can recognize design questions.</td>
<td>I can recognize how design questions are used to solve problems.</td>
<td>I can answer design challenge questions.</td>
<td>I can work with a team to answer design challenge questions.</td>
<td>I can work with a team from a given list to identify and describe a design challenge to develop.</td>
<td>I can work with a team from a given list to consider multiple design challenges and select one to describe.</td>
<td>I can work with a team to conceive several design challenge possibilities pertaining to a certain topic.</td>
<td>I can work with a team to conceive many design challenge possibilities.</td>
<td>I can work on my own to conceive many design challenge possibilities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator De.NL.CR.1.1</th>
<th>Indicator De.NM.CR.1.1</th>
<th>Indicator De.NH.CR.1.1</th>
<th>Indicator De.IL.CR.1.1</th>
<th>Indicator De.IM.CR.1.1</th>
<th>Indicator De.IH.CR.1.1</th>
<th>Indicator De.AL.CR.1.1</th>
<th>Indicator De.AM.CR.1.1</th>
<th>Indicator De.AH.CR.1.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can answer the design challenge questions who, what,</td>
<td>I can answer the design challenge questions who, what,</td>
<td>I can answer the design challenge questions who, what,</td>
<td>I can work with a team to answer the design challenge</td>
<td>I can work with a team to select a design challenge</td>
<td>I can work in a team to discuss design challenges</td>
<td>I can work with a team using design thinking strategies to</td>
<td>I can work with a team using design thinking strategies to</td>
<td>I can use design thinking strategies to list many</td>
</tr>
</tbody>
</table>
Guides Learning
Functional Goals
Why?

Transdisciplinary STEM
PBL/STEM ROAD TO THE PROFILE
The Productive PBL Struggle

Students

Teachers

Establish the Culture
Design & Plan
Inquire
Plan & Develop
Support & Assess
Review, Rethink & Modify
The Product
Profile of the SC Graduate

South Carolina Department of Education
Design thinking is how you approach a problem.
Define
Design Challenge
Creating Standard 1

Reflect
Feedback
Responding Standard 6

Revise

Research
Design Challenge
Creating Standard 2

Present
Design Solution
Presenting Standard 5

Apply
Design Thinking Strategies
Creating Standard 3

Create
Prototype
Creating Standard 4
Visual Arts
Design Challenge
Design Standard Creating Standard 1

Reflect
Feedback
Presenting Standard 3

Research
Design Challenge
Connecting Standard 6

Revise

Apply
Design Thinking Strategies
Creating Standard 1

Create
Prototype
Creating Standard 2
Connecting Standard 7

Present
Design Solution
Presenting Standard 4

Media Arts
Design Challenge
Design Creating Standard 1

Reflect
Feedback
Responding Standard 4

Research
Design Challenge
Connecting Standard 5
Connecting Standard 7

Revise

Apply
Design Thinking Strategies
Creating Standard 2

Create
Prototype
Creating Standard 1

Present
Design Solution
Presenting Standard 3
Science and Engineering Practices

- Asking Questions and Defining Problems
- Developing and Using Models
- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Using Mathematics and Conceptual Thinking
- Constructing Explanations and Designing Solutions
- Engaging in Argument for Evidence
- Obtaining, Evaluating, and Communicating Information
Historically the word “design” has been associated with visual art.
What is Design?
STEAM
Arts and Design Integrate STEM Subjects
Design makes innovations desirable.
Design and Innovative thinking Improve our economy
## Exports by economic groups, 2002-11 ($)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Art Crafts</td>
<td>17,503</td>
<td>34,209</td>
<td>9,201</td>
<td>23,383</td>
<td>8,256</td>
<td>10,653</td>
</tr>
<tr>
<td>Audio Visuals</td>
<td>455</td>
<td>492</td>
<td>35</td>
<td>90</td>
<td>417</td>
<td>400</td>
</tr>
<tr>
<td>Design</td>
<td>114,694</td>
<td>301,262</td>
<td>53,362</td>
<td>172,223</td>
<td>60,970</td>
<td>127,239</td>
</tr>
<tr>
<td>New Media</td>
<td>17,506</td>
<td>43,744</td>
<td>4,412</td>
<td>14,607</td>
<td>13,071</td>
<td>28,918</td>
</tr>
<tr>
<td>Performing Arts</td>
<td>2,754</td>
<td>-</td>
<td>250</td>
<td>-</td>
<td>2,478</td>
<td>-</td>
</tr>
<tr>
<td>Publishing</td>
<td>29,908</td>
<td>43,077</td>
<td>3,157</td>
<td>8,106</td>
<td>26,061</td>
<td>33,650</td>
</tr>
<tr>
<td>Visual Arts</td>
<td>15,421</td>
<td>31,127</td>
<td>3,474</td>
<td>9,456</td>
<td>11,916</td>
<td>21,631</td>
</tr>
</tbody>
</table>

*United Nationals Creative Economy Report. 2013*
Design; an economic driver

Design’s contribution to the UK economy is £71.7bn in gross value added (GVA), equivalent to 7.2% of UK total GVA.
“Design and innovation are major factors that drive growth in the economy. “

2013 industrial designs registered in:

India: 5077

Us: 88,984

China: 420,888

“THERE SEEMS TO BE AN AGREEMENT AMONG DESIGN RESEARCHERS THAT "DESIGN THINKING" WILL BE AN ENABLER OF PROGRESS IN BUSINESS, EDUCATION AND HEALTH CARE”.

Business leaders

- Bill Gates
- Business Coalition for Student Achievement: CEOs of State Farm and Intel
- Business Roundtable: association of chief executive officers of leading U.S. companies with $4.5 trillion in annual revenues and more than 10 million employees.
- U.S. Chamber of Commerce: the world's largest business federation representing more than 3 million businesses
Are we preparing students for the workplace?

In Schools, Generally, Problems are:
- often clearly defined
- confined to a single discipline
- have one right answer

In Business, Generally, Problems are:
- often poorly defined
- multi-disciplinary
- have several possible answers, perhaps none of them perfect.
American employers rate **creativity and innovation** among the top five skills as needed for the 21\textsuperscript{st} century workforce.
What does ‘creativity’ mean?

<table>
<thead>
<tr>
<th>Skill</th>
<th>School Superintendents</th>
<th>Business/Employers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem identification or articulation</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Ability to identify new patterns of behavior or new combination of actions</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Integration of knowledge across different disciplines</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Ability to originate new ideas</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Comfort with notion of ‘no right answer’</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Fundamental curiosity</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Originality and inventiveness in work</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Problem solving</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Ability to take risks</td>
<td>9(t)</td>
<td>8</td>
</tr>
<tr>
<td>Tolerance of ambiguity</td>
<td>9(t)</td>
<td>7</td>
</tr>
<tr>
<td>Ability to communicate new ideas to others</td>
<td>11</td>
<td>5</td>
</tr>
</tbody>
</table>

Everyone suggests creativity is key for a 21st-century workforce, but educators and executives differ on what specific creative skills are most important, according to a 2007 survey of 155 school superintendents and 89 employers.

Rank determined by percentage of respondents selecting skill. Respondents allowed to select only three skills.

Americans for the Arts, The American Association of School Administrators and the Conference Board
HERE IS WHAT MAKES ART AND DESIGN EDUCATION VERY IMPORTANT.......
DESIGN IS ABOUT FUNCTION AND STYLE.

I LOOK AT THE A IN STEAM AS MEANING AESTHETICS
INNOVATIVE IDEAS IN PRODUCT DESIGN

LOOK AT THESE...IT IS ABOUT *STYLE*
ENVIRONMENTAL DESIGN
High Line
New York (Final Phase 2014)

Aqua Tower
At the University of Technology Sydney, BrandCulture Communications makes the wayfinding system for a new learning space more immersive, leveraging floors and other surfaces and integrating branded graphics (2010, BrandCulture Communications).

The Washington, D.C., citywide wayfinding program, geared toward 22 million annual tourists, becomes reality after more than 25 years of failed attempts (2001, Calori & Vanden-Eynden). (Photo: DC Wayfinding)
21st Century Skills

- **Ways of thinking.** Creativity, critical thinking, problem-solving, decision-making and learning

- **Ways of working.** Communication and collaboration

- **Tools for working.** Information and communications technology (ICT) and information literacy

- **Skills for living** in the world.

*Assessment and Teaching of 21st Century Skills, University of Melbourne*
7 Survival Skills of the 21st Century

by Tony Wagner,
Harvard University

Critical Thinking &
Problem Solving

Accessing & Analyzing
Information

Agility &
Adaptability

Curiosity &
Imagination

Initiative &
Enterpreneurialism

Effective Oral &
Written Communication

Collaboration Across
Networks & Leading by
Influence

Why would K-12 students be interested?
Designing is an innate ability

• It is natural to want to manage, arrange, organize and discipline a seemingly chaotic environment

• **Everyone is a consumer and creator**

• Designed objects surround them. They relate to products, buildings, and media sources.
Designing is innate
If designing is innate, what do we need to teach to K-12 students?
There are skill sets, concepts, and an historic foundation that may be taught...
Framework for the Principles, Practices, and Strategies for Teaching Design

- helps students make sense of and contribute to the world
- contributes to the skills, knowledge, and dispositions to be successful in a career.
Design-Based Learning and Life Skills

- Design Thinking
- Problem Finding and Problem Solving
- Teamwork and Collaboration
- Critical Thinking
- Creativity, Innovation, and Experimentation
- Communication
- Combining diverse ideas
- Flexibility and Adaptability
DAY AT THE PARK

Rules:
- For up to 4 teams.
- Begins at "Circus" sign.
- Roll dice to move.
- If you land on "A", spin the纺轮 to determine your activity.
- If you successfully complete the task, your team receives one token.
- Tokens will be collected throughout the game.

Objective:
- Make it to the bandstand to hear the band play.
- First group to arrive at the gazebo/bandstand receives 3 tokens.
- Second group receives 2 tokens.
- Third group receives 1 token.
- Last group receives no tokens.

Winner:
- When all groups arrive at the gazebo, fill tokens are counted. The team with the most wins!
Professional Skills

- Leadership/Mentorship
- Project/Time Management
- Reports/Documentation
- Client/Design Liaison
- Business/Strategic Models
- Rapid Prototyping
- Ethnography/Ethics
Design Mindset Dispositions

- Empathy
- Mindfulness
- Curiosity
- Resilience/Persistence
- Equity
- Flexibility
- Respect/Integrity
### How are art and design education different?

<table>
<thead>
<tr>
<th>Art</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Art is primarily about self-expression</td>
<td>1. Design addresses stated needs and solves problems</td>
</tr>
<tr>
<td>2. Art can rely on aesthetics alone</td>
<td>2. Design bridges aesthetics and function</td>
</tr>
<tr>
<td>3. Art is open to interpretation by the viewer</td>
<td>3. Design must communicate clearly to an intended audience</td>
</tr>
<tr>
<td>4. Art is typically viewed in galleries and museums</td>
<td>4. Design is seen and experienced in daily life</td>
</tr>
<tr>
<td>5. Art exists for itself</td>
<td>5. Design exists most often for a end user</td>
</tr>
<tr>
<td>6. Art is not typically created with specific rules</td>
<td>6. Design is created within boundaries from conception to completion</td>
</tr>
<tr>
<td>7. Art is very often a solitary endeavor</td>
<td>7. Design is typically created through team collaboration</td>
</tr>
<tr>
<td>8. Enjoyment of art may be an end in itself</td>
<td>8. Enjoyment of design is not an end in itself, it must also function properly</td>
</tr>
</tbody>
</table>
Questions?

- If your state currently has design included in your high school arts standards, how does that philosophy/approach differ from what you saw today?

- How could other states adopt PreK-12 design thinking standards?

- What considerations need to be made?
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