Program of Excellence

Science

OKLAHOMA STATE DEPARTMENT OF EDUCATION
CHAMPION EXCELLENCE

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Champion Excellence

Fundamental to the role of a champion is the capacity to envision potential. It is the belief in one's potential, the potential of our students and our colleagues, and the potential of our educational system that gives us cause to act with intentionality and to persevere when we are faced with challenges. In order to cast a shared vision that drives collective action that embraces and the collective wisdom of the education community across Oklahoma, the Oklahoma State Department of Education has collaborated with educators and school leaders to develop Programs of Excellence rubrics that envision and describe the characteristics of excellent disciplinary programs within a school.

The Programs of Excellence rubrics are **emergent**, in that they are co-designed with input from educators across the state and always in draft form; **aspirational**, in that they speak to an idealized, holistic vision of each program that may be impossible for one school to fully embody; and **flexible**, in that they respect the unique contexts of Oklahoma's schools whether that be in size, geography, or demography.

"Every child deserves a champion, an adult who will never give up on them, who understands the power of connection, and insists that they become the best that they can possibly be."
— Rita Pierson

Across disciplines, there are variations that bring perspective from the unique communities who shaped their contents, capturing real experiences, shared values, and a hope for well-rounded learning opportunities for all children in a safe and healthy school. Throughout the remainder of this year and the 2019-2020 school year, the Programs of Excellence rubrics will continue to change and grow as the best attributes across the disciplines are shared and insights from stakeholders are taken into account.

Please help shape this vision for excellent programs that all children deserve by sharing your input at http://sde.ok.gov/ChampionExcellence.

Using the Program of Excellence Rubric

The responsibility of identifying a school disciplinary program as bronze, silver, or gold is placed on the school and its community. Through local evaluation and verification, a school can celebrate efforts and create strategic initiatives to improve. The OSDE will not verify each identification claim, but the school is expected to utilize the following process for reviewing and identifying its level of distinction.

1. **Review:** A school-based advisory committee involving external stakeholders as appropriate, will make recommendations for bronze, silver, or gold status. I*t is not appropriate to assign the review process to an individual. The review process should be inclusive and transparent.*
2. **Verification:** The recommendation of the advisory committee must be signed off by each member of the committee and reviewed by the school principal. Upon verification by the principal, the recommendation will be submitted to the district school board and superintendent for review and verification.
3. **Submission (beginning summer 2020):** Only when each layer of review and verification is complete, the final self-identification will be submitted to the OSDE. Levels of distinction for Programs of Excellence will be valid for three years and will be visible on the school's accountability dashboard. *The remainder of this school year and the 2019-2020 school year provides schools with the opportunity to select priority areas for which they will work to be ready to identify as bronze, silver, or gold in 2020.*

In this Program of Excellence rubric, each element of the rubric is provided as a characteristic of a bronze, silver, or gold program. **In order to be a bronze science program, every bronze element, or characteristic, must be true of the school's science program.** A school's science program may only be considered silver only when every bronze element **AND** every silver element is true. Likewise, a school's science program may only be considered gold when every bronze, silver, **AND** gold element is true.

The fidelity of the Programs of Excellence process hinges on the fair and honest local review. Please help protect this ambitious effort to celebrate the great work happening across Oklahoma.

Category 1 Curriculum

The school faculty develops and implements a curriculum that is rigorous, intentional and aligned to state and local standards.

A BRONZE program…
A. Ensures all science curriculum is aligned to the specific grade-level or subject Oklahoma Academic Standards for Science (OAS-Science).
B. Provides students at every grade level opportunities to engage in the integration of the three dimensions (disciplinary core ideas, science & engineering practices and the crosscutting concepts) present in the OAS-Science. Students are doing science—not only reading about science.

A SILVER program has all the elements of a BRONZE program and…
C. Puts into place curriculum alignment processes to ensure that all curriculum is deeply rooted in the three dimensions found in the OAS-Science and cognitively demanding. Regular review and revision processes provide the opportunity to strengthen horizontal and vertical alignment.

A GOLD program has all the elements of a BRONZE and SILVER program and…
D. Protects the science learning experience by ensuring students are not pulled out of the science classroom for remediation in other areas.

E. Affords science instruction ample time each day to ensure students are able to engage fully in the expectations defined in the OAS-Science. • In elementary school, the OAS-Science are taught daily for a minimum of 45 minutes in every classroom. This could include effective integration with other subjects, but should be focused on the three-dimensions of the OAS-Science. • In grades 6-8, students are provided the opportunity to take courses that promote real-world applications of science, which may include courses that integrate mathematics, engineering and computer science. • In grades 9-12, students have access to multiple science courses beyond the science courses required for graduation credit.

Category 2 Classroom Assessment

The school faculty uses multiple evaluation and assessment strategies to continuously monitor and modify instruction to meet student needs and support proficient student work.

A BRONZE program…
A. Creates and implements a comprehensive, balanced assessment system that includes both assessment of learning (reporting on what's been learned) and assessments for learning (providing ongoing feedback to teachers and students as learning progresses).
B. Conducts ongoing reviews and revisions of all local assessments that are a part of the comprehensive assessment to ensure alignment to the Oklahoma Academic Standards for Science (OAS-Science).

Category 2: Classroom Assessment (continued)

A SILVER program has all the elements of a BRONZE program and…
C. Ensures teachers elicit student thinking to drive subsequent instruction that builds on productive beginnings and addresses emerging understandings from multiple forms of assessment (e.g. discussion, check-in, informal and formal assessments, etc.).

A GOLD program has all the elements of a BRONZE and SILVER program and…
D. Ensures teacher-created summative assessment of learning, as well as formative assessments for learning, are equitable and a part of a comprehensive, balanced assessment system resulting from teacher collaboration that monitors students' knowledge and encourages students to develop their own strategies, approaches, and understandings of science.
E. Ensures students are given the opportunity to collaborate with teachers to analyze assessment results and inform subsequent academic and instructional steps. Students are provided opportunities to reflect and evaluate their own learning, and teachers work with students to set academic goals based on assessments.

Category 3 Instruction

The school faculty provides an instructional program that actively engages all students by using effective, varied, and research-based practices to improve student academic performance.

A BRONZE program…
A. Provides teachers with opportunities to collaborate with other teachers to establish clear goals aligned with the OAS-Science that articulate what science students will learn as a result of instruction over a series of lessons or throughout a unit.

Category 3: Instruction (continued)

	B. Provides teachers with the necessary high-quality materials and hands-on resources needed to effectively teach the three dimensions (disciplinary core ideas, science & engineering practices and the crosscutting concepts) in the OAS-Science.
	C. Ensures that teachers are implementing a variety of presentation modes to accommodate learning differences.
	D. Encourages students to express, clarify, justify, interpret, and represent their ideas and respond to peer and teacher feedback orally and/or in written form as appropriate to support student's three-dimensional learning. Students are given opportunities to interact and share ideas with their peers.
	**A SILVER program has all the elements of a BRONZE program and…**
	E. Expects and supports teachers to regularly implement tasks/experiences that provide students with the opportunity to engage actively in reasoning, sense-making, and problem solving so that they develop a deep understanding of science.
	F. Ensures teachers strategically use technological tools that support both the learning of science practices and content. Technological tools that do not enhance the learning process are not encouraged.
	**A GOLD program has all the elements of a BRONZE and SILVER program and…**
	G. Teachers are interested in science and have the knowledge of the content, practices and crosscutting concepts to teach it effectively.
	H. Employs alternatively- or traditionally-certified science educators in all science classrooms.
	I. Enables teachers to work collaboratively to examine, discuss, and respond to student work and responses to formative assessments.

Category 4 School Culture

The school/district leadership team functions as an effective learning community and supports a climate conducive to performance excellence.

A BRONZE program…
A. Has administrators who provide support the science program by— • supplying appropriate materials, equipment, and space to implement the Oklahoma Academic Standards for Science (OAS-Science); • recognizing exemplary science teaching at all grade levels; • encouraging and helping to implement special science events (may be outside the normal school day); • ensuring that science instruction embraces three-dimensional learning as set forth in A Framework for K–12 Science Education (NRC 2012); and • encouraging student engagement in science and engineering practices through phenomena and design challenges.
B. Ensures the scientific contributions of ALL students in the science classroom are encouraged, recognized and valued.

A SILVER program has all the elements of a BRONZE program and…
C. Communicates student progress to parents and students. This should be done periodically throughout the year.

A GOLD program has all the elements of a BRONZE and SILVER program and…
D. The school provides expanded science learning opportunities for all students (e.g., before/after school programs, clubs, internships, mentoring, and leadership opportunities).

Category 4: School Culture (continued)

E. Has leaders who provide opportunities for students to interact with members of their community as well as members of their family.
   - **Communities:** Might include special events and programs in the community that enable students to meet scientists or visit a worksite or local university where science and technology are prevalent. Online academic mentorship programs that pair students and scientists to carry out STEM projects are also available.
   - **Families:** Provide and encourage frequent opportunities for science learning at home and in the community through outdoor play; participation in summer programs; or trips to parks, museums, zoos, nature centers, and other interesting science-rich sites in the community.

Category 5 Professional Growth, Development, and Evaluation

The school/district leadership team functions as an effective learning community and supports a climate conducive to performance excellence.

A BRONZE program…
A. Collaboratively and with stakeholder input, develops, communicates, and enacts a plan for science education that addresses: • the necessity that every student experiences substantial, grade-level science at every grade level and • high quality materials are provided to educators to effectively implement the new three dimensional standards found in the Oklahoma Academic Standards for Science (OAS-Science).

Category 5: Professional Growth, Development, and Evaluation (continued)

B. Ensures all science teachers have access to professional development opportunities each semester specifically around implementation, instruction, and/or content of the OAS-Science. The professional development is an ongoing series, which builds upon the previous session's goals and objectives. There is a focus on having teachers use what they learn during the sessions and then reflecting upon that at the next session.

A SILVER program has all the elements of a BRONZE program and…

C. Builds a thoughtful, comprehensive professional development plan that focuses on providing their teachers with a deeper understanding of the three dimensions and phenomena so they can better immerse their students into meaningful science experiences.

D. Identifies teacher leaders in each building (or grade level) who serve as peer mentors. Special attention is given to the support and placement of new teachers.

A GOLD program has all the elements of a BRONZE and SILVER program and…

E. Expects teachers to take what they learn in the sustained professional development and implement it directly in their classroom instruction. After time is given to implement new knowledge, teachers are given opportunities to reflect with each other and continue their growth and knowledge around three-dimensional science teaching and learning.

F. Facilitates regular teacher meetings designed to improve science instruction at both the building and district levels. Regular meetings happen periodically throughout the year and should be a chance grade-level and vertical PLCs.

G. Actively involves teachers in the decision making for professional development programs, curriculum changes, and other activities that affect their practice.