

## **K20 STEM – Building STEM-Ready Elementary Schools**

**Sponsored by the Oklahoma State Department of Education**

### *Overview*

K20 STEM is designed to meet the need of improving pK-5 Science, Technology, Engineering, and Mathematics [STEM] across the state. The K20STEM goal is overall school improvement that lays the foundation to prepare students for college and STEM careers. The results will be increases in teachers' STEM content knowledge and increases in use of research-based practices by PK-5 teachers as well as increases in student success in Oklahoma Academic Standards, especially science and mathematics. This STEM project will impact these 150 teachers and approximately 3,750 students in their classrooms and serve as a model for other schools and classrooms. The project objectives include:

- Objective 1: Deepen the STEM content knowledge of PK-5 teachers.
- Objective 2: Increase teacher understanding of STEM integration and practices through authentic experiences.
- Objective 3: Increase teacher use of process oriented and content specific research-based STEM instructional strategies and practices.
- Objective 4: Create STEM professional communities of practice that provide meaningful learner experiences.

K20STEM specialists will provide professional development for teachers using a variety of materials and lesson samples. STEM lessons will be based on the Oklahoma Academic Standards. Materials used in the professional development will include research-based programs in science and mathematics, a variety of technologies (not limited to digital), and engineering lessons. Teachers will attend grade level specific and school-site professional development in which they experience the scientific and mathematical practices. Ongoing professional development will be delivered through face-to-face meetings held at K20, the school site, and virtually to support teachers in collaboration with other teachers, supported by the K20STEM specialists. K20STEM will work with leaders and teachers to develop a STEM-ready school and sustainability plan based on their needs and the implementation of the Oklahoma Academic Standards.

### Eligibility:

All Oklahoma pK-5 public schools and/or districts are eligible to apply for FY 2014 awards. Application forms will be distributed to State Department of Education listservs and all OK-ACTS school leaders via e-mail. Applications may also be obtained by contacting Pat Turner, Carol Goodgame, Susan Young, Jean Cate, or Linda Atkinson (contact information below) or at the K20 web site [http://k20center.ou.edu/STEM-Ready Schools](http://k20center.ou.edu/STEM-Ready_Schools).

### Timeline:

- |                                     |                 |
|-------------------------------------|-----------------|
| • Official application announcement | June 26, 2013   |
| • Applications forms due            | August 1, 2013  |
| • Notification of grantees          | August 12, 2013 |

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Carol Goodgame, STEM Specialist, (405) 325-1938, [cgoodgame@ou.edu](mailto:cgoodgame@ou.edu)  
Pat Turner, STEM Specialist, (405) 325-1938, [pturner@ou.edu](mailto:pturner@ou.edu)  
Susan Young, STEM Specialist, (405) 325-1938, [susancrowyoung@ou.edu](mailto:susancrowyoung@ou.edu)

## **K20 STEM: Building Elementary STEM-Ready Schools**

### *Overview of Professional Development, Resources, and Time Commitments*

K20 STEM engages PK-5 elementary teachers in a year of professional development. Dates and session times during the school year are adjusted to meet the needs of individual schools but some of the professional development will require sessions during the school day. Some substitutes may be required, thus a match of \$3000 for substitutes and travel is required.

The focus of the grant will be scientific conceptual understanding and practices with mathematics integration. The focus of the mathematical learning and understanding will emphasize measurement, analysis, graphical representation, and problem solving utilizing science contexts. Schools will also receive some teacher resources (which may include books and lesson integration materials) during the professional development process.

Professional development will include how children learn, inquiry science and mathematical practices, classroom management strategies for hands-on learning, science content and materials use, formative assessment, and mathematical and engineering concepts and practices, as well as digital and not-digital technology integration strategies. The professional development will help teachers develop implementation plans and strategies for the transition to the Oklahoma Academic Standards.

A one-day orientation will be held at K20 in early September and STEM content professional development sessions will begin at school sites after that throughout the 2013-2014 school year. An administrator and Learning Team session will be a part of this one day orientation as well as the K20 Innovative Learning Institute on November 20, 2013. All classroom teachers will be expected to attend at least most of the half-day sessions during the four days of on-site professional development. Substitutes or classroom covers will be required as a part of the school match as funds will not be provided for the reimbursement of substitutes or stipends to the district for professional development. The school district is expected to commit to providing release time for teachers in order to participate in a minimum of four on-site half-day sessions. K20STEM staff will work closely with grant school recipients to schedule sessions that will work within the existing school structure. Each school will be expected to host a STEM Family Night. Virtual networking support will also be available through the grant for communication with K20 staff as well as to facilitate learning community development. At the end of the school year, a Reflection Day will be held for the Learning Team at K20 Center.

### *Eligibility for Application*

**An eligible applicant is a PK-5 Oklahoma public school with an OK-ACTS trained administrator or one who is willing to attend OK-ACTS leadership training as a requirement for the K20STEM. At least 80% of the teachers in the school must agree to participate but 100% participation is encouraged.**

### *Criteria for Application*

- Districts are committed to providing sufficient release time for teachers and administrators to participate in the professional development sessions and agree to provide a \$3000 match. *Funds for substitutes will NOT be reimbursed through the grant.*
- The school's faculty members commit to supporting the proposal and its implementation.
  - Teachers agree to teach at least three of the lessons developed through the project.
- Grant recipients agree to perform project evaluation reflections and activities, including surveys, interviews and observations.
- The school administrator agrees to attend two administrator PD sessions each year and provide supportive structures and monitoring for the implementation of STEM curriculum in the school.
- The school agrees to bring a team to the annual Innovative Learning Institute (ILI) in the fall of each grant year and to the annual Reflection Day at the end of the year.
- The school agrees to host a STEM Family Night during the school year.
- The school identifies and convenes a STEM Learning and Leadership team that will set goals and support implementation of the grant goals into the existing school goals, assisting with planning and dissemination of project initiatives.
  - The school shall select a STEM Learning and Leadership team representing members of your school community. The team should represent all members of your school community, i.e., teachers from a variety of grades and/or subject areas, administrators, parents, and community members.
  - The school shall select a team leader to serve as the district/school coordinator to provide leadership for the learning team and facilitate on-site professional development and planning meetings along with the school administrator.

### ***To Submit an Application***

1. Download this application form.
2. Fill in the required information.
3. Print the application and add signatures.
4. Send to the K20 Center via mail, scan, or PDF.

The application must be received no later than **5:00 p.m. Thursday, August 1, 2013**. The application may be faxed (405-325-5009) or sent electronically via scan or pdf (for signature pages).

Our address is:   The K20 Center for Educational and Community Renewal  
                          Attn: Dr. Jean Cate  
                          3100 Monitor Avenue, Suite 200  
                          Norman, Oklahoma 73072

Technical assistance is available by calling (405) 325-1267.

A completed application consists of:

1. General Information page with signatures.
2. Two (2) narrative pages that describe your team's intentions for improving STEM education.
3. CRT Information page with attached copy of the school's **science** and **math** summary reports disaggregated by standards and objectives for the 2012-2013 school year.
4. Administrator statement of assurances with signatures.
5. Teacher statement of participation with signatures.



*Complete the two narrative items on the blank sheets provided or as a separate document. Limit each narrative to one page and be sure that the district name and school are at the top of each page.*

**Narrative 1: IDEALS and Ten Practices of High-Achieving Schools** (limit one page)

The IDEALS are the framework for the K20 Center’s professional learning community model. IDEALS is an acronym for inquiry, discourse, equity, authenticity, leadership, and service. This framework is based on ten research-based practices of high-achieving schools. For detailed information see the website: <http://k20center.ou.edu/ideals>. With this framework in mind, please use the following questions as a guideline for describing your school’s goals for this grant:

1. Which of the ten research-based practices are strengths for your school, especially as they relate to STEM practices?
2. Which practice(s) will you work on to support your STEM implementation?
3. How will the STEM professional development support your efforts to enhance the practice(s) you have chosen to focus on?

**Narrative 2: Vision for Science, Technology, Engineering and Mathematics**

**Learning for your students** (limit one page)

Please use the following questions as a guideline for describing your school’s goals for science and mathematics learning for both teachers and students.

1. Briefly describe your school’s vision for student learning. How does your school approach the task of ensuring that your students are provided with meaningful learning experiences that will help them be successful beyond school?
2. Describe how STEM fits into your whole school vision for student learning.
3. How does your school currently use data to inform instructional practice in STEM?
4. How do you see this grant helping your school to improve and/or support STEM education at your school in a way that fits your whole-school vision? What kind of assistance can the grant provide you in establishing/maintaining a culture of inquiry centered practices on improved student learning?
5. What industries/businesses in your community do/might help support your STEM vision?

District	School
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**Narrative 1: IDEALS and Ten Practices of High-Achieving Schools (limit one page)**

District	School
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**Narrative 2: Vision for Science and Mathematics Learning (limit one page)**

District	School
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**State CRT Information:** *Please provide the following CRT information from your school.*

1. Attach copy of the class summary report (single page) for **science** (grade 5) and **math** (grades 3, 4, and 5, disaggregated by standards and objectives for the 2012-2013.

2. 2012-2013 OCCT scores for 5<sup>th</sup> grade science.

	2012-2013
<b>Advanced</b>	%
<b>Satisfactory</b>	%
<b>Limited Knowledge</b>	%
<b>Below Satisfactory</b>	%

3. 2012-13 OCCT Scores for 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grade math (all that apply)

	3 <sup>rd</sup> Grade	4 <sup>th</sup> Grade	5 <sup>th</sup> Grade
<b>Advanced</b>	%	%	%
<b>Satisfactory</b>	%	%	%
<b>Limited Knowledge</b>	%	%	%
<b>Below Satisfactory</b>	%	%	%

4. What technology is available in your school to support this project? What data do you have to determine the level of implementation of technology integration and what does it tell you?

Technology	Primary Classrooms	Intermediate Classrooms
Projectors		
Interactive White Boards		
Computers/Laptop carts		
Slates/Mobis		
Clickers		
I-Pod Touches		
I-Pads		
Other (Please specify)		

*Provide level of technology integration data if available:*

District	School
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**STATEMENT OF ASSURANCES (Administrator)**

Signatures of the district superintendent and of the school administrator indicate that every effort will be made to comply with the following requirements:

1. The school administrator will attend an administrative orientation meeting and attend the OK-ACTS leadership training, if have not done so previously.
2. The school administrator will provide supportive structures and monitoring of all professional development and implementation of STEM materials and lessons.
3. The school administrator will designate a teacher leader who will serve as a contact person to facilitate on-site professional development and planning meetings.
4. The school administrator will convene regularly a STEM Learning Team for the purpose of supporting the implementation of school and STEM project goals.
5. The administrator and learning team will collaboratively plan the on-site professional development with the K20 specialists.
6. Teachers will attend 90% of the planned on-site professional development work sessions.
7. The school will send a team, including an administrator and several teachers, to the K20 Innovative Learning Institute (ILI) on November 20, 2013 and the STEM Reflection Session May or early June, 2014.
8. Teachers will participate in data collection used to determine program needs, improvement, and effectiveness and provide school-level (*no individual student data*) achievement data to determine how the project may have impacted student learning over time.
9. The school administrators and teachers will provide service to other Oklahoma schools, through avenues such as sharing STEM experiences and lessons at conferences and/or allowing other schools to visit.
10. The school administrators and learning team will develop a sustainability plan to continue STEM learning in the years following the grant.
11. The administrator will comply with all audit, record keeping, and expenditure requirements of Federal and State regulations, K20, and the Oklahoma State Department of Education.
12. Upon request, agree to host an annual site visit for compliance review.

\_\_\_\_\_  
**Signature of District Superintendent**

\_\_\_\_\_  
 Printed name of District Superintendent

\_\_\_\_\_  
**Signature of Principal**

\_\_\_\_\_  
 Printed name of Principal

District	School
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List members of the STEM Learning and Leadership Team, comprised of teachers from a variety of grades and/or subject areas, administrators, parents, and community members.

Name	Role / Position	Signatures
	Principal and Convener of Team	

\_\_\_\_\_  
Signature of superintendent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of principal

\_\_\_\_\_  
Date

By signing the above, I agree to serve on the planning and dissemination team. I agree to share information and assist implementation, and represent others whom I represent. I further agree to make every effort to attend the Orientation, Innovative Learning Institute, and Reflection Days as well as the professional development.

