

The largest learning event in history

During Computer Science Education Week,
December 8-14, 2014

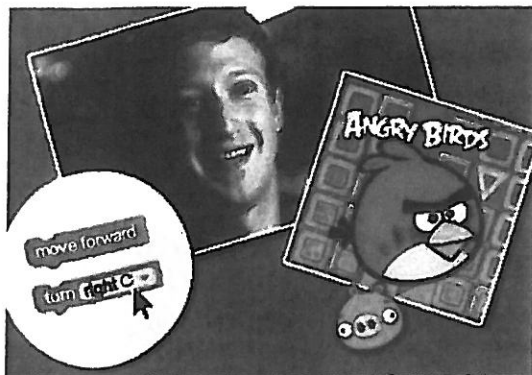
The Hour
of Code
is coming,
again!



Last year, 15 million students tried an Hour of Code in one week. Join students all over the world for an Hour of Code during Computer Science Education Week, December 8-14. We're aiming for **100 million students worldwide** to do an Hour of Code by the end of 2014!

What is the Hour of Code?

A one-hour activity. Students of all ages can choose from a variety of self-guided tutorials, from kindergarten up. Tutorials work on any modern browser, tablet, smartphone, or *even with no computer at all*. Code.org's own tutorial features Angry Birds, Plants vs. Zombies and video lectures from Mark Zuckerberg and Bill Gates.



No experience needed from teachers and students.

A spark to keep learning computer science. Once students see what they create right before their eyes, they're empowered to keep learning.

A global movement reaching tens of millions of students in 170+ countries. Anyone, anywhere can organize an Hour of Code event. Tutorials are available in over 30 languages.

Why computer science?

Every 21st-century student should have the opportunity to learn computer science. The basics help nurture creativity and problem-solving skills, and prepare students for any future career. Software and computers are everywhere, but fewer schools teach computer science than 10 years ago.

Get involved

Ask your local school to offer an Hour of Code or host your own event. Help spread the word with **#HourOfCode!**



"I have **never, ever** seen my students so excited about learning."

—Michael Clark,
Teacher



"I knew this was a **once-in-a-life-time** chance"
—Mariana Alzate,
5th grader

Incredible stats from last year's Hour of Code. In one week alone:

It was the fastest to reach 15 million users.

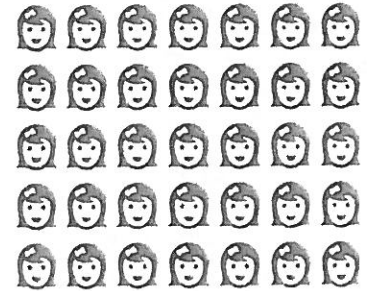


The Hour of Code: 5 days

15 million students in 170 countries learned an Hour of Code.



More girls tried computer science than in the last 70 years.



Over 4 million girls in 2013

Together, we can fix the diversity gap in tech

Technology and software historically suffer from an extreme lack of diversity. The Hour of Code is a first step in fixing this, showing all students what computer science is all about. Last year almost half of all Hour of Code participants were girls, 8% were black and 14% Hispanic. Computer science students on average are only 18% female, 3% black, and 8% Hispanic.

Join us to propel unprecedented momentum— from CEOs to celebrities to the President

President Obama, Shakira and Ashton Kutcher all kicked off last year's Hour of Code with video messages. The movement was featured on homepages of Google, YouTube, Yahoo!, MSN, Disney and Bing. Every Apple and Microsoft store in the country hosted an Hour of Code workshop. Tech titans Bill Gates, Jack Dorsey, Susan Wojcicki and Gabe Newell all connected with classrooms in live video chats.

Over 100 partners have come together to support this grassroots campaign, including Boys and Girls Clubs of America, College Board, Microsoft, Amazon, Teach for America, Khan Academy and more.



"Every single day yielded the same results—**100% engagement.**"
—Nira Nichols
Peery, Teacher

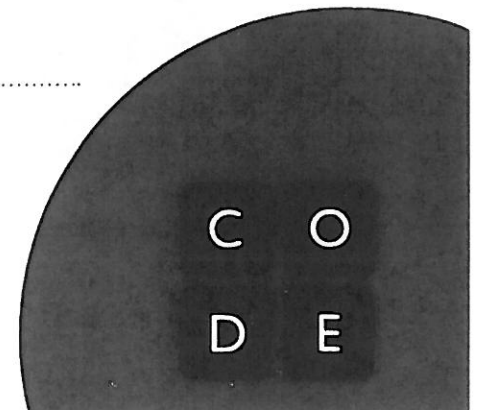
Prizes for EVERY organizer—and win computers for your school, or a classroom chat with a special guest speaker

- Every Hour of Code organizer will receive Dropbox space or Skype credit as a thank you for bringing it to students.
- One lucky school in every US state (+ Washington, D.C.) will win \$10,000 worth of technology!
- 50 lucky classrooms will win video chats with special guests.

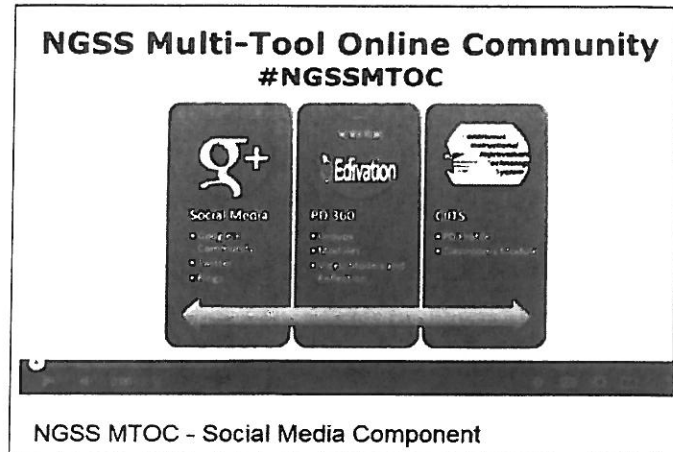
Mark your calendars now for December 8-14, 2014!

Start at <http://hourofcode.com>

The Hour of Code is organized by Code.org, a public 501c3 non-profit dedicated to expanding computer science education and increasing participation by women and underrepresented students of color. The Hour of Code is celebrated during the annual Computer Science Education Week.



It is the long history of humankind (and animal kind, too) those who learned to collaborate and improvise most effectively have prevailed.
-Charles Darwin



<http://youtu.be/vek1RqLIJAE>

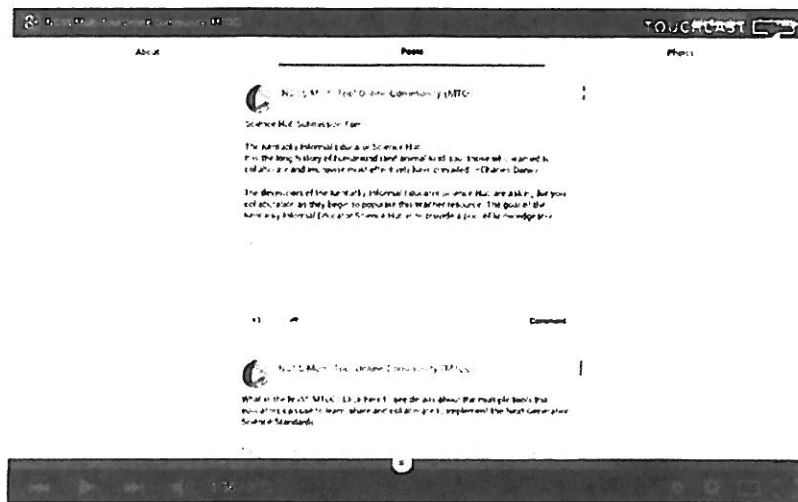
Tutorial at <http://youtu.be/KnkvIDZONNU?list=UUM5LDijiO3ool5PY3PEJFgw>

Welcome to the NGSS Multi-Tool Online Community (MTOC) a resource powered by teachers for teachers! Our vision is to establish a place where Kentucky educators learn, share and collaborate to implement the Next Generation Science Standards. True integration of the 3 dimensions of our new KCAS science standards requires significant shifts in instructional practices which can only be obtained through collaborative effort, collective conversations, and personal reflection. Through active participation in NGSS Tools community, educators will gain a better understanding of the standards and great Science teaching, find support and resources for implementation, and connect with others for professional growth. This community of educators will lead the way in facilitating positive change in science education by supporting others as they design classrooms of students as meaning makers, acting and thinking like scientists. The goal of this community is to foster personalized professional learning around the Next Generation Science Standards, engage in reflective practice, and create a shared collection of resources. This is a community formed by teachers for teachers, we need your voice, your expertise, and your participation to align our efforts and build something great to support student achievement in Kentucky.

We are really excited about the Social media component of the NGSS Multi-Tool Online Community. Implementation of the the Next Generation Science Standards provides an opportunity for KY teachers to transform science education in our state as well as throughout the country. Kentucky is leading the way in NGSS implementation creating an

opportunity for KY teachers to align efforts, connect, learn , and share with other educators on a national scale. The Social Media Tool in our community is a global space for sharing resources, ideas, professional learning, blog reflections, and stories from the classroom. Social Media provides access to learning support from NGSS experts, peers, and scientists with rich and diverse backgrounds that can contribute to your on- going personalized professional growth. Social media is an active place where all teachers can lead from the classroom, coaching and supporting others while they learn themselves in both synchronous and asynchronous ways. We would like to bring people together across states to share our thinking and learning around the Next Generation Science Standards. Please bring your passion and expertise to our community. Every teacher has a great story to share and is an important part of this conversation.

The Informal Educator Science Hub

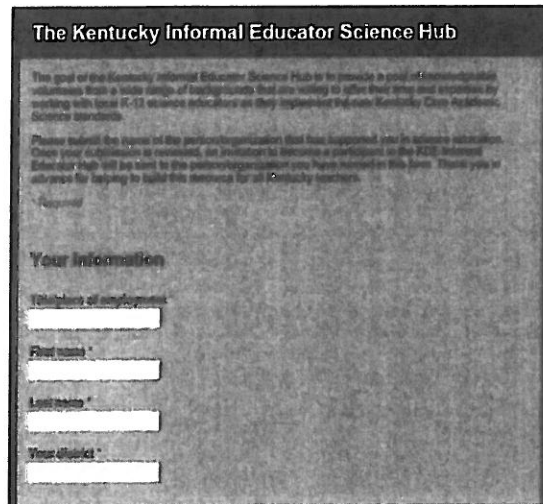


<http://tinyurl/ngssmtoc>

Within the NGSS Multi-tool Online Community is another resource that might be of interest to you. It is the IESH . The goal of the Kentucky Informal Educator Science Hub is to provide a pool of knowledgeable volunteers, from a wide range of backgrounds, that are willing to offer their time and expertise to work with and provide support to local K-12 science educators as they implement the new Kentucky Core Academic Science standards.

These persons can be from various backgrounds related to science. Reflect on those persons or organizations that have provide you with support throughout the school year. There are also numerous informal venues that offer valuable support to our students and to teachers. Please share those people and places that will be invaluable to your colleagues and our Kentucky students.

Please help populate the Kentucky Science Hub



The Kentucky Informal Educator Science Hub

The goal of the Kentucky Informal Educator Science Hub is to provide a pool of knowledgeable volunteers with a wide range of backgrounds that are willing to offer their time and expertise by working with local K-12 science educators as they implement the new Kentucky Core Academic Science standards.

Please submit the name of the person/organization that has supported you in science education. Once your submission is reviewed, an invitation to become a participant in the KIE Informal Educator Hub will be sent to the person/organization you have named in the form. Thank you in advance for helping to build this resource for all Kentucky teachers.

Required

Your information

Volunteer or organization

First name *

Last name *

Your district *


https://docs.google.com/forms/d/1uocntEv6GhVOogKNUCzXs7A_gD7GdXoLc7axVclYCFc/viewform?c=0&w=1&usp=mail_form_link

The submission form can be accessed through the NGSS Multi-tool online community or at the link provided at the bottom of the slide. Please emphasize that all submission will be reviewed and that the person or organization being submitted will be notified as asked if they are willing to support educators in KY with the implementation of the science standards through this resource.

Please submit the person/organization that has supported you in science education. Once your submission is reviewed, a letter will be sent to the person/organization you have named in the form.

If you have any questions related to the Informal Educator Science Hub, please contact me at Christine.duke@education.ky.gov. Thank you in advance for helping to build this resource for all Kentucky teachers.

Share link to form.



Science Connection
 KENTUCKY DEPARTMENT OF EDUCATION
 A Collaborative Resource for Teachers, November 2014, Volume 1, Issue 1

Editor's note

It is the long history of handwritten journal articles that have often inspired to publish and improve most of us have provided. "Charlie" Duvall

As I continue to grow in my understanding of the new science standards I realize how important it is to collaborate with others like school professionals and informal educators. Last month an article was shared by Trish Duvall that suggested engaging in Twitter chats and #K12Community blogs, both of which I would highly recommend. This month I would like to share with you an opportunity to collaborate on the development of another resource intended to improve teachers and students.

What do you reach out to when you have a question about science content that can't be answered by Google? What settings do you go on that provide support of your confidence? What has come to your attention in possible enrichment opportunities related to your current work of study? Are there informal educators who have helped you create learning experiences for your students beyond your classroom?

This is the information that I hope to collect and make available to you in the Kentucky Informal Educator Resource Hub. The goal of the Kentucky Informal Educator Resource Hub is to provide a pool of knowledgeable volunteers from a wide range of backgrounds that are willing to offer their time and expertise to work with local K-12 science educators as they implement the new Kentucky Core Academic Science standards. Please submit the personal information that has supported you in science education. Once your submission is reviewed, a letter will be sent to the person/organization you have named in the form.

If you have any questions related to the Informal Educator Resource Hub, please contact me at charlie.duvall@kde.ky.gov. Thank you in advance for helping to build the resource for all Kentucky teachers.

Fill out the form online by clicking [here](#).

'Super' Models: a powerful practice for learning and teaching science


Diane Johnson, Ph.D.

Developing and using scientific models is a powerful practice that helps students build understanding of core ideas in science as well as an understanding of how knowledge in science progresses (Delmont, et al., 2009), while making student thinking visible to their instructional partners (Clavery & Schmalz, 2010). In order to lay the groundwork for this practice in the classroom, educators will need to distinguish scientific models from the widespread use of the word model, especially on how that practice progresses across grade bands, and establish students' developing understanding and use of modeling with a range of tools and strategies.


What makes a model scientific?

Key features are in implementing this practice is ensuring that when we use the term model in our science classroom, students are using a scientific definition of the term. According to the description of the practice in Appendix F of the NGSS, "1.1.1.1"

Continued on Page 2



Practice
Developing and Using Models



Crosscutting Concept
Systems and System Models

Join professional
 list serves at
<http://www.coe.uky.edu/u/lists/kylists.php>

Just in case you aren't receiving the Science Connection...go to link and join the K12Science list serve. The monthly Science Connection is distributed through this venue. This newsletter, as well as other content specific newsletters, can also be found on the KDE Newsstand at <http://education.ky.gov/comm/Pages/KDE-Newsletters.aspx>

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Domain 1 Planning & Preparation	Domain 2 Classroom Environment	Domain 3 Instruction	Domain 4 Professional Responsibilities	Domain 5 Student Growth
<p>A. Demonstrating Knowledge of Content and Pedagogy</p> <ol style="list-style-type: none"> i. Knowledge of Content and the Structure of the Discipline ii. Knowledge of Prerequisite Relationships iii. Knowledge of Content-Related Pedagogy <p>B. Demonstrating Knowledge of Students</p> <ol style="list-style-type: none"> i. Knowledge of Child and Adolescent Development ii. Knowledge of the Learning Process iii. Knowledge of Students' Skills, Proficiency, and Language iv. Knowledge of Students' Interests and Cultural Heritage v. Knowledge of Students' Special Needs <p>C. Selecting Instructional Outcomes</p> <ol style="list-style-type: none"> i. Value, Sequence, and Alignment ii. Clarity iii. Balance iv. Suitability for Diverse Learners <p>D. Demonstrating Knowledge of Resources</p> <ol style="list-style-type: none"> i. Resources for Classroom Use ii. Resources to Extend Content Knowledge and Pedagogy iii. Resources for Students <p>E. Designing Coherent Instruction</p> <ol style="list-style-type: none"> i. Learning Activities ii. Instructional Materials and Resources iii. Instructional Groups iv. Lesson and Unit Structure <p>F. Designing Student Assessment</p> <ol style="list-style-type: none"> i. Congruence with Instructional Outcomes ii. Criteria and Standards iii. Design of Formative Assessments iv. Use for Planning 	<p>A. Creating an Environment of Respect and Rapport</p> <ol style="list-style-type: none"> i. Teacher Interaction with Students ii. Student Interactions with One Another <p>B. Establishing a Culture for Learning</p> <ol style="list-style-type: none"> i. Importance of the Content ii. Expectations for Learning and Achievement <p>C. Managing Classroom Procedures</p> <ol style="list-style-type: none"> i. Management of Instructional Groups ii. Management of Transitions iii. Management of Materials and Supplies iv. Performance of Non-Instructional Duties v. Supervision of Volunteers and Paraprofessionals <p>D. Managing Student Behavior</p> <ol style="list-style-type: none"> i. Expectations ii. Monitoring of Student Behavior iii. Response to Student Misbehavior <p>E. Organizing Physical Space</p> <ol style="list-style-type: none"> i. Safety and Accessibility ii. Arrangement of Furniture and Use of Physical Resources 	<p>A. Communicating with Students</p> <ol style="list-style-type: none"> i. Expectations for Learning ii. Directions and Procedures iii. Explanation of Content iv. Use of Oral and Written Language <p>B. Using Questioning and Discussion Techniques</p> <ol style="list-style-type: none"> i. Quality of Questions ii. Discussion Techniques iii. Student Participation <p>C. Engaging Students in Learning</p> <ol style="list-style-type: none"> i. Activities and Assignments ii. Grouping of Students iii. Instructional Materials and Resources iv. Structure and Pacing <p>D. Using Assessment in Instruction</p> <ol style="list-style-type: none"> i. Assessment Criteria ii. Monitoring of Student Learning iii. Feedback to Students iv. Student Self-Assessment and Monitoring of Progress <p>E. Demonstrating Flexibility and Responsiveness</p> <ol style="list-style-type: none"> i. Lesson Adjustment ii. Response to Students iii. Persistence 	<p>A. Reflecting on Teaching</p> <ol style="list-style-type: none"> i. Accuracy ii. Use in Future Teaching <p>B. Maintaining Accurate Records</p> <ol style="list-style-type: none"> i. Student Completion of Assignments ii. Student Progress in Learning iii. Non-Instructional Records <p>C. Communicating with Families</p> <ol style="list-style-type: none"> i. Information About the Instructional Program ii. Information About Individual Students iii. Engagement of Families in the Instructional Program <p>D. Participating in a Professional Community</p> <ol style="list-style-type: none"> i. Relationships with Colleagues ii. Involvement in a Culture of Professional Inquiry iii. Service to the School iv. Participation in School and District Projects <p>E. Growing and Developing Professionally</p> <ol style="list-style-type: none"> i. Enhancement of Content Knowledge and Pedagogical Skill ii. Receptivity to Feedback from Colleagues iii. Service to the Profession <p>F. Demonstrating Professionalism</p> <ol style="list-style-type: none"> i. Integrity and Ethical Conduct ii. Service to Students iii. Advocacy iv. Decision Making v. Compliance with School and District Regulations 	<p>A. Student Growth</p> <ol style="list-style-type: none"> i. Student Growth Results ii. Rigorous Student Growth Goals iii. Student Growth Goal Setting Process iv. Student Growth Percentiles

	<i>Ineffective</i>	<i>Developing</i>	<i>Accomplished</i>	<i>Exemplary</i>
<p>2B - Establishing a Culture for Learning</p> <ul style="list-style-type: none"> Importance of the Content Expectations for Learning and Achievement Student Pride in Work 	<p>The classroom culture is characterized by a lack of teacher or student commitment to the learning and/or little or no investment of student energy into the task at hand.</p> <ul style="list-style-type: none"> Hard work is not expected or valued. Medium or low expectations for student achievement are the norm, with high expectations for learning reserved for only one or two students 	<p>The classroom culture is characterized by little commitment to learning by teacher or students.</p> <ul style="list-style-type: none"> The teacher appears to be only going through the motions, and students indicate that they are interested in completion of a task, rather than quality. The teacher conveys that student success is the result of natural ability rather than hard work; high expectations for learning are reserved for those students thought to have a natural aptitude for the subject. 	<p>The classroom culture is a cognitively busy place where learning is valued by all, with high expectations for learning being the norm for most students.</p> <ul style="list-style-type: none"> The teacher conveys that with hard work students can be successful. Students understand their role as learners and consistently expend effort to learn. Classroom interactions support learning and hard work. 	<p>The classroom culture is a cognitively vibrant place, characterized by a shared belief in the importance of learning.</p> <ul style="list-style-type: none"> The teacher conveys high expectations for learning by all students and insists on hard work. Students assume responsibility for high quality by initiating improvements, making revisions, adding detail, and/or helping peers.
<p>Critical Attributes</p>	<ul style="list-style-type: none"> The teacher conveys that the reasons for the work are external or trivializes the learning goals and assignments. The teacher conveys to at least some students that the work is too challenging for them Students exhibit little or no pride in their work. Class time is devoted more to socializing than to learning. 	<ul style="list-style-type: none"> Teacher's energy for the work is neutral, indicating neither a high level of commitment nor "blowing it off". The teacher conveys high expectations for only some students. Students comply with the teacher's expectations for learning, but they don't indicate commitment on their own initiative for the work. Many students indicate that they are looking for an "easy path". 	<ul style="list-style-type: none"> The teacher communicates the importance of learning and the assurance that with hard work all students can be successful in it. The teacher demonstrates a high regard for student abilities. Teacher conveys an expectation of high levels of student effort. Students expend good effort to complete work of high quality. 	<p>In addition to the characteristics of "accomplished":</p> <ul style="list-style-type: none"> The teacher communicates a genuine passion for the subject. Students indicate that they are not satisfied unless they have complete understanding. Students questions and comments indicate a desire to understand the content rather than, for example, simply learn a procedure for getting the correct answer. Students recognize the efforts of their classmates. Students take initiative in improving the quality of their work.
<p>Possible Examples</p>	<ul style="list-style-type: none"> The teacher tells students that they're doing lessons because it's on the test, in the book, or mandated by the district. Teacher says to a student: "Why don't you try this easier problem?" Students turn in sloppy or incomplete work. Students don't engage in work, and the teacher ignores it. Students have not completed their homework, and the teacher does not 	<ul style="list-style-type: none"> Teacher says: "Let's get through this." Teachers say: "I think most of you will be able to do this." Students consult with one another to determine how to fill out a worksheet but do not encourage each other to questions their ideas. Teacher does not encourage students who are struggling. Only some students get down to work after 	<ul style="list-style-type: none"> Teacher says: "This is important: you'll need to speak grammatical English when you apply for a job." Teacher says: "This idea is really important! It's central to our understanding of history." Teacher says: "Let's work on this together: it's hard, but you all will be able to do it well." Teacher hands a paper back to a student, saying, "I know you can do a better job on 	<ul style="list-style-type: none"> The teacher says: "It's really fun to find the patterns for factoring polynomials." Student asks a classmate to explain a concept or procedure since s/he didn't quite follow the teacher's explanation. Students question one another on answers. Student asks the teacher whether s/he can redo a piece of work since s/he now sees how it could be strengthened. Students work even when the teacher isn't

<p>Possible Examples (cont.)</p>	<p>respond.</p> <ul style="list-style-type: none"> • Almost all of the activities are busy work. 	<p>an assignment is given or after entering the room.</p>	<p>this.” The student accepts the comment without complaint.</p> <ul style="list-style-type: none"> • Students get down to work right away when an assignment is given or after entering the room. 	<p>working with them or directing their efforts.</p>
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	Ineffective	Developing	Accomplished	Exemplary
<p>2D - Managing Student Behavior</p> <ul style="list-style-type: none"> Expectations Monitoring of Student Behavior Response to Student Misbehavior 	<p>In order for student to be able to engage deeply with content, the classroom environment must be orderly, the atmosphere must feel businesslike and productive, without being authoritarian. In a productive classroom, standards of conduct are clear to students; they know what they are permitted to do and what they can expect of their classmates. Even when their behavior is being corrected, students feel respected; their dignity is not undermined. Skilled teachers regard positive student behavior not as an end in itself, but as a prerequisite to high levels of engagement in content.</p> <ul style="list-style-type: none"> There appear to be no established standards of conduct and little or no teacher monitoring of student behavior. Students challenge the standards of conduct. Response to students' misbehavior is repressive or disrespectful of student dignity 	<ul style="list-style-type: none"> Standards of conduct appear to have been established, but their implementation is inconsistent. Teacher tries, with uneven results, to monitor student behavior and respond to student misbehavior. There is inconsistent implementation of the standards of conduct. 	<ul style="list-style-type: none"> Student behavior is generally appropriate. The teacher monitors student behavior against established standards of conduct. Teacher response to student misbehavior is consistent, proportionate, respectful to students, and effective. 	<ul style="list-style-type: none"> Student behavior is entirely appropriate. Students take an active role in monitoring their own behavior and that of other students against standards of conduct. Teachers' monitoring of student behavior is subtle and preventative. Teacher's response to student misbehavior is sensitive to individual student needs and respects students' dignity.
<p>Critical Attributes</p>	<ul style="list-style-type: none"> The classroom environment is chaotic, with no apparent standards of conduct. The teacher does not monitor student behavior. Some students violate classroom rules, without apparent teacher awareness. When the teacher notices student misbehavior, s/he appears helpless to do anything about it. 	<ul style="list-style-type: none"> Teacher attempts to maintain order in the classroom but with uneven success; standards of conduct, if they exist, are not evident. Teacher attempts to keep track of student behavior, but with no apparent system. The teacher's response to student misbehavior is inconsistent, at times very harsh, other times lenient. 	<ul style="list-style-type: none"> Standards of conduct appear to have been established. Student behavior is generally appropriate. The teacher frequently monitors student behavior. Teacher's response to student misbehavior is effective. Teacher acknowledges good behavior. 	<p>In addition to the characteristics of "accomplished":</p> <ul style="list-style-type: none"> Student behavior is entirely appropriate; there is no evidence of student misbehavior. The teacher monitors student behavior without speaking—just moving about. Students respectfully intervene as appropriate with classmates to ensure compliance with standards of conduct.
<p>Possible Examples</p>	<ul style="list-style-type: none"> Students are talking among themselves, with no attempt by the teacher to silence them. An object flies through the air, without teacher notice. Students are running around the room, the result being a chaotic environment. Their phones and other electronics distract students; but, the teacher does nothing. 	<ul style="list-style-type: none"> Upon a nonverbal signal from the teacher, students correct their behavior. The teacher moves to every section of the classroom; keeping a close eye on student behavior. The teacher gives a student a hard look, and the student stops talking to his/her neighbor. 	<ul style="list-style-type: none"> A student suggests a revision in one of the classroom rules. The teacher notices that some students are talking among themselves and without a word moves nearer to them, the talking stops. The teacher asks to speak to a student privately about misbehavior. A student reminds his/her classmates of the class rule about chewing gum. 	

3B - Questioning and Discussion Techniques					
<ul style="list-style-type: none"> Quality of Questions Discussion Techniques Student Participation 	<p>Questioning and discussion are the only instructional strategies specifically referred to in the framework for teaching; this fact reflects their central importance to teachers' practice. But in the framework it is important that questioning and discussion are used as techniques to deepen student understanding are being used rather than serving as recitation or a verbal quiz. Good teachers use divergent as well as convergent questions, framed in such a way that they invite students to formulate hypotheses, make connections, or challenge previously held views. Students' responses to questions are valued; effective teachers are especially adept at responding to and building upon student responses and making use of their ideas. High-quality questions encourage student to make connections among concepts or events previously believed to be unrelated, and arrive at new understandings of complex material. Effective teachers also pose questions for which they do not know the answers. Even when a question has limited number of correct responses, the question, being non-formulaic, is likely to promote thinking by students. Class discussions are animated, engaging all students in important issues and in using their own language to deepen and extend their understanding. These discussions may be based on questions formulated by the students themselves.</p> <p>Not all questions must be at high cognitive level in order for a teacher's performance to be rated at a high level; that is, when exploring a topic, a teacher might begin with a series of questions of low cognitive challenge to provide a review, or to ensure that everyone in the class is "on board." Furthermore, if the questions are at a high level, but only a few students participate in the discussion, the teacher's performance on the component cannot be judged to be at a high level. In addition, in lessons involving student in small-group work, the quality of the student's questions and discussion in their small groups may be considered part of this component.</p> <p>In order for students to formulate high-level questions, they must have learned how to do so. Therefore, high-level questions from students, either in the full class, or in small group discussions, provide evidence that these skills have been taught.</p>	<p>Ineffective</p> <ul style="list-style-type: none"> Teacher's questions are of low cognitive challenge, require single correct responses, and are asked in rapid succession. Interaction between teacher and students is predominantly recitation style, with the teacher mediating all questions and answers. A few students dominate the discussion. 	<p>Developing</p> <ul style="list-style-type: none"> Teacher's questions lead students through a single path of inquiry, with answers seemingly determined in advance. Alternatively, the teacher attempts to frame some questions designed to promote student thinking and understanding, but only a few students are involved. Teacher attempts to engage all students in the discussion and to encourage them to respond to one another, but with uneven results. 	<p>Accomplished</p> <ul style="list-style-type: none"> Although the teacher may use some low-level questions, he or she asks the students questions designed to promote thinking and understanding. Teacher creates a genuine discussion among students, providing adequate time for students to respond and stepping aside when appropriate. Teacher successfully engages most students in the discussion, employing a range of strategies to ensure that most students are heard. 	<p>Exemplary</p> <ul style="list-style-type: none"> Teacher uses a variety or series of questions or prompts to challenge students cognitively, advance high-level thinking and discourse, and promote metacognition. Students formulate many questions, initiate topics, and make unsolicited contributions. Students themselves ensure that all voices are heard in the discussion.
<p>Critical Attributes</p> <ul style="list-style-type: none"> Questions are rapid-fire, and convergent with a single correct answer. Questions do not invite student thinking. All discussion is between teacher and students; students are not invited to speak directly to one another. A few Students dominate the discussion. 	<ul style="list-style-type: none"> Teacher frames some questions designed to promote student thinking, but only a small number of students are involved. The teacher invites students to respond directly to one another's ideas, but few students respond. Teacher calls on many students, but only a few actually participate in the discussion. 	<ul style="list-style-type: none"> Teacher uses open-ended questions, inviting students to think and/or offer multiple possible answers. The teacher makes effective use of wait time. The teacher effectively builds on student responses to questions. Discussions enable students to talk to one another without ongoing mediation by the teacher. The teacher calls on most students, even those who don't initially volunteer. Many students actively engage in the 	<p>In addition to the characteristics of "accomplished":</p> <ul style="list-style-type: none"> Students initiate higher-order questions. Students extend the discussion, enriching it. Students invite comments from their classmates during a discussion. 		

<p>Possible Examples</p> <ul style="list-style-type: none"> All questions are of the "recitation" type such as "What is 3 x 4?" The teacher asks a questions for which the answer is on the board; students respond by reading it. The teacher calls only upon students who have their hands up. 	<ul style="list-style-type: none"> Many questions are of the "recitation" type, such as "How many members of the House of Representatives are there?" The teacher asks: "Who has an idea about this?" but only the usual three students offer comments. The teacher asks: "Michael can you comment on Mary's idea?" but Michael does not respond or makes a comment directly to the teacher. 	<p>discussion.</p> <ul style="list-style-type: none"> The teacher asks: "What might have happened if the colonists had not prevailed in the American war for independence?" The teacher uses the plural form in asking questions, such as "What are some things you think might contribute to . . .?" The teacher asks; "Michael, can you comment on Mary's idea?" and Michael responds directly to Mary. After posing a question and asking each of the students to write a brief response and then share it with a partner, the teacher invites a few to offer their ideas to the entire class. 	<ul style="list-style-type: none"> A student asks, "How many ways are there to get this answer?" A student says to a classmate: "I don't think I agree with you on this, because . . ." A student asks of other students: "Does anyone have another idea how we might figure this out?" A student asks, "What if . . .?"
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<p>3C - Engaging Students in Learning</p> <ul style="list-style-type: none"> • Activities and Assignments • Grouping of Students • Instructional Materials and Resources • Structure and Pacing 	<p>Student engagement in learning is the centerpiece of the framework for teaching; all other components contribute to it. When students are engaged in learning, they are not merely "busy," nor are they "on task." The critical distinction between a classroom in which students are compliant and busy and one in which they are engaged is that the latter students are developing their understanding through what they do. That is, they are engaged in discussing, debating, answering "what if?" questions, discovering patterns, and the like. They may be selecting their work from a range of (teacher-arranged) choices and making important contributions to the intellectual life of the class. Such activities don't typically consume the entire lesson, but they are essential components of engagement.</p> <p>A lesson in which students are engaged usually has a discernible structure: a beginning, a middle, and an end, with scaffolding provided by the teacher or by the activities themselves. The teacher organizes student tasks to provide cognitive challenge and then encourages students to reflect on what they have done and what they have learned. This is, the lesson has closure, in which students derive the important learning from their own actions. A critical question for an observer in determining the degree of student engagement is "What are the students being asked to do?" If the answer to that question is that they are filling in blanks on a worksheet or performing a rote procedure, they are unlikely to be cognitively engaged. In observing a lesson it is essential no only to watch the teacher but also pay close attention to the students and what they are doing. The best evidence for student engagement is what students are saying and doing as a consequence of what the teacher does, or has done, or has planned.</p>			
	<p>Ineffective</p> <ul style="list-style-type: none"> • The learning tasks and activities, materials, resources, instructional groups and technology are poorly aligned with the instructional outcomes or require only rote responses. • The pace of the lesson is too slow or too rushed. • Few students are intellectually engaged or interested. 	<p>Developing</p> <ul style="list-style-type: none"> • The learning tasks and activities are partially aligned with the instructional outcomes but require only minimal thinking by students, allowing most to be passive or merely compliant. • The pacing of the lesson may not provide students the time needed to be intellectually engaged. 	<p>Accomplished</p> <ul style="list-style-type: none"> • The learning tasks and activities are aligned with instructional outcomes and designed to challenge student thinking, the result being that most students display active intellectual engagement with important and challenging content and are supported in that engagement by teacher scaffolding. • The pacing of the lesson is appropriate, providing most students the time needed to be intellectually engaged. 	<p>Exemplary</p> <ul style="list-style-type: none"> • Virtually all students are intellectually engaged in challenging content through well-designed learning tasks and suitable scaffolding by the teacher and fully aligned with the instructional outcomes. • In addition, there is evidence of some student initiation of inquiry and of student contribution to the exploration of important content. • The pacing of the lesson provides students with and reflect upon their learning and to consolidate their understanding. • Students may have some choice in how they complete tasks and may serve as resources for one another.
<p>Critical Attributes</p>	<ul style="list-style-type: none"> • Few students are intellectually engaged in the lesson. • Learning tasks require only recall or have a single correct response or method. • The materials used ask students to perform only rote tasks. • Only one type of instructional group is used (whole group, small groups) when variety would better serve the instructional purpose. • Instructional materials used are unsuitable to the lesson and/or students. 	<ul style="list-style-type: none"> • Some students are intellectually engaged in the lesson. • Learning tasks are a mix of those requiring thinking and recall. • Students are in large part passively engaged with the content, learning primarily facts or procedures. • Students have no choice in how they complete tasks. • The teacher uses different instructional groupings; these are partially successful in achieving the lesson objectives. 	<ul style="list-style-type: none"> • Most students are intellectually engaged in the lesson. • Learning tasks have multiple correct responses or approaches and/or demand higher-order thinking. • Students have some choice in how they complete learning tasks. • There is a mix of different types of groupings, suitable to the lesson objectives. • Materials and resources support the learning goals and require intellectual engagement, as appropriate. 	<p>In addition to the characteristics of "accomplished":</p> <ul style="list-style-type: none"> • Virtually all students are highly engaged in the lesson. • Students take initiative to modify a learning task to make it more meaningful or relevant to their needs. • Students suggest modifications to the grouping patterns used. • Students have extensive choice in how they complete tasks. • Students suggest modifications or additions

Critical Attributes (cont.)	<ul style="list-style-type: none"> The lesson drags or is rushed. 	<ul style="list-style-type: none"> The materials and resources are partially aligned to the lesson objectives and only in some cases demand student thinking. The pacing of the lesson is uneven- suitable in parts, but rushed or dragging in others. 	<ul style="list-style-type: none"> The pacing of the lesson provides students the time needed to be intellectually engaged. 	<ul style="list-style-type: none"> to materials being used. Students have the opportunity for both reflection and closure after the lesson to consolidate their understanding.
Possible Examples	<ul style="list-style-type: none"> Students are able to fill out the worksheet without fully understanding what it's asking them to do. The lesson drags or feels rushed. Students complete "busy work" activities. 	<ul style="list-style-type: none"> Students are asked to fill in a worksheet, following an established procedure. There is a recognizable beginning, middle and end to the lesson. Parts of the lesson have a suitable pace: other parts drag or feel rushed. 	<ul style="list-style-type: none"> Students are asked to formulate a hypothesis about what might happen if the American voting system allowed for the direct election of presidents. Students are given a task to do independently, then to discuss with a table group, and then to report out from each table. There is a clear beginning, middle and end to the lesson. The lesson neither rushes or drags. 	<ul style="list-style-type: none"> Students are asked to write an essay "in the spirit of Hemmingway." A student asks whether they might remain in their small groups to complete another section of the activity, rather than work independently. Students identify or create their own learning materials. Students summarize their learning from the lesson.

3D - Using Assessment in Instruction		Assessment of student learning plays an important role in instruction; no longer does it signal the end of instruction; it is now recognized to be an integral part of instruction. While assessment for learning has always been and will continue to be an important aspect of teaching (it's important for teachers to know whether students have learned what was intended), assessment for learning has increasingly come to play an important role in classroom practice. And in order to assess student learning for the purposes of instruction, teachers must have their "fingers on the pulse" of a lesson, monitoring student understanding and, where appropriate, offering feedback to students.	
Assessment Criteria	Ineffective	Developing	Accomplished
<ul style="list-style-type: none"> Assessment Criteria Monitoring of Student Learning Feedback to Students Student Self-Assessment Monitoring of Progress 	<ul style="list-style-type: none"> There is little or no assessment or monitoring of student learning; feedback is absent or of poor quality. Students do not appear to be aware of the assessment criteria and do not engage in self-assessment. 	<ul style="list-style-type: none"> Assessment is used sporadically by teacher and/or students to support instruction through some monitoring of progress in learning. Feedback to students is general, students appear to be only partially aware of the assessment criteria used to evaluate their work, and few assess their own work. 	<ul style="list-style-type: none"> Assessment is used regularly by teacher and/or students during the lesson through monitoring of learning progress and results in accurate, specific feedback that advances learning. Students appear to be aware of the assessment criteria; some of them engage in self-assessment Questions, prompts, assessments are used to diagnose evidence of learning.
Critical Attributes	<ul style="list-style-type: none"> The teacher gives no indication of what high-quality work looks like. The teacher makes no effort to determine whether students understand the lesson. Feedback is only global. The teacher does not ask students to evaluate their own classmates work. 	<ul style="list-style-type: none"> There is little evidence that the students understand how their work will be evaluated. Teacher monitors understanding through a single method, or without eliciting evidence of understanding from all students. Teacher requests global indications of student understanding. Feedback to students is not uniformly specific and not oriented towards future improvement of the work. The teacher makes only minor attempts to engage students in self-assessment or peer assessment. 	<ul style="list-style-type: none"> Students indicate that they clearly understand the characteristics of high-quality work. The teacher elicits evidence of student understanding during the lesson. Students are invited to assess their own work and make improvements. Feedback includes specific and timely guidance, at least for groups of students. The teacher attempts to engage students in self-assessment or peer assessment.
Possible Examples	<ul style="list-style-type: none"> A student asks: "How is this assignment going to be graded?" A student asks, "Does this quiz count towards my grade?" The teacher forges ahead with a 	<ul style="list-style-type: none"> Teacher asks: "Does anyone have a question?" When a student completes a problem on the board, the teacher corrects the student's work without explaining why. 	<ul style="list-style-type: none"> The teacher reminds students of the characteristics of high-quality work (the assessment criteria), suggesting that the students themselves helped develop them. While students are working, the teacher

<p>Possible Examples (cont.)</p>	<p>presentation without checking for understanding.</p> <ul style="list-style-type: none"> The teacher says: "Good job, everyone." 	<ul style="list-style-type: none"> The teacher, after receiving a correct response from one student, continues without ascertaining whether all students understand the concept. 	<p>understanding.</p> <ul style="list-style-type: none"> The teacher asks student to look over their papers to correct their errors 	<p>circulates, providing substantive feedback to individual students.</p> <ul style="list-style-type: none"> The teacher uses exit tickets to elicit evidence of individual student understanding. Students offer feedback to their classmates on their work. Students evaluate a piece of their writing rubric and confer with the teacher about how it could be improved.
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