

Mathematics Instruction: Algebra Connections

Western Kentucky Cohort (Region 1)

Syllabus

Kentucky Center for Mathematics, Northern Kentucky University	
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Instructor Contacts	
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Overview

This workshop is one of four tracks within the Experienced Instructors Institute and is designed for KYAE full-time instructors, instructor’s aides and program directors who teach mathematics; specifically algebra.

Prerequisites

This workshop is intended for experienced full-time instructors, instructor’s aides and program directors hired before July 1, 2007. In order to participate in this workshop, you must have completed the Orientation to Adult Education online course. Also, you will be more fully prepared to participate if you have completed the TABE and OPT workshop, “Assessment to Instruction and Effective Instructional Strategies” and Foundations in Math Instruction.

Workshop Description:

Participants will explore the latest research-based practices for teaching and learning algebra. The workshop is designed as an introductory course providing an overview of instructional strategies and foundational knowledge needed to deliver research-based algebra instruction to students.

Instructors and instructor’s aides will participate in several targeted activities designed to inform and improve classroom instruction. Covering many algebraic topics that concern our students, the workshop will provide instructors and instructor’s aides with a toolbox of instructional strategies for improving algebraic thinking skills, problem solving and connecting algebra to real-life situations. Participants will explore various formal and informal assessment tools.

Learning Goals

Participants will:

1. Gain an understanding of what is required of an algebra student at different levels
2. Understand various research-based instructional strategies for teaching algebraic thinking and problem-solving
3. Gain an understanding of connections between prior knowledge and future learning
4. Understand the need for connections across the Depth of Knowledge continuum
5. Gain an understanding of the importance of connections between algebra and real-life situations
6. Be introduced to formative assessment and its use in the classroom
7. Develop lesson plans for classroom instruction

Performance Objectives

This workshop will enable instructors and instructor's aides to:

1. Demonstrate mathematics skills and strategies in algebra instruction
2. Help answer the question "When are we ever gonna use this?"
3. Develop, apply and evaluate classroom lesson plans for teaching algebra

Workshop Design

The workshop will combine face-to-face sessions, demonstrations of instructional strategies, distance learning, classroom application of learning and an opportunity to receive on-the-job feedback from an instructor. The components of the workshop are listed below. Specific instructions related to each are found in the Institute Schedule section of the syllabus.

- Pre-work – the following will be made available on ANGEL two weeks prior to institute and must be completed no later than three days before institute:
 - Math Efficacy and Attitudes online survey—to determine the beliefs of the instructors concerning mathematics instruction
 - Online Assignment—to prepare participants for workshop participation
- First Face-to-Face Session – two days that include an overview of the workshop syllabus, timeline and expectations. Instructional strategies and types of learning connections will be modeled, discussed and practiced throughout the institute.
- Interim #1 – a four-week session that includes:
 - Assignment—participants complete an assignment during which knowledge acquired in the First Face-to-Face Session will be implemented in the classroom
 - Web conferencing—participants meet for one to two hours via Microsoft Live! Meeting to answer/discuss/ask questions/make comments that arise during the assignment
- Optional Second Face-to-Face Session – one day algebra content refresher.
- Interim #2 – a 10-12 week session that includes:
 - Classroom Project—an interim project during which knowledge acquired in the first two face-to-face sessions will be implemented in the classroom resulting in formal lesson plans and a classroom instruction plan
 - Site visit—an institute instructor will visit the participants' centers. This is an opportunity to practice instructional strategies, receive constructive feedback and ask questions
- Culminating Event Session – a final one and one-half day session including a showcase of classroom projects, participant sharing/discussion and additional resources
- Post-training – includes a Post-Assessment of Knowledge Gained online survey to determine the effectiveness of the workshop overall and the knowledge gained as a result of participation

Provided Books and Materials

- Participant binder complete with handouts
- Books/Articles

Assignments

The workshop includes (5) assignments: a pre-assignment, 1 mid-session assignment, 1 online assignment, at least 1 online discussion and a classroom-embedded project. Assignments are designed to assist participants in incorporating knowledge, strategies and tools learned in the workshop into their classroom instruction. All assignments must be completed in a timely and satisfactory manner (see scoring rubric) in order to receive credit for the workshop.

ANGEL Web site

ANGEL is KYAE's online course management system. Using ANGEL you will be able to access the pre-test and pre-work assignment that will need to be completed three days prior to the First Face-to-Face Session. Additionally, you can download the workshop syllabus, submit assignments, obtain course information, access resources and participate in discussion.

How to get to online courses in ANGEL:

After you have registered for an institute using PDtrack at <https://pdtrack.kyvae.org/>, you will receive an e-mail on how to complete the online pre-work and pre-test in ANGEL. You will also get an e-mail from kyvc@kyvc.org indicating that an ANGEL account has been created for you giving you your username and password so you can begin taking your online courses.

When you are ready to take your course, please go to the following Web site: <http://kyvae.ky.gov> or <http://www.kyvc.org>. You will see the login area in the middle of the page. If you are a new student, you will be prompted to change your password the first time you log into the system. After you successfully login, your course(s) will show up on the left hand side of that page under "Courses". To get started, click the name of the course. You may also update your personal information by clicking "Update Personal Information" under the "My Information" area.

If for some reason, your courses do not show up under "Courses" after you have logged into the system, please contact Toni Quire at 502-573-5114, ext. 113, or e-mail her at toni.quire@ky.gov.

Please note: If you cannot remember your username and password of your ANGEL account, please contact Toni Quire at 502-573-5114, ext. 113, or e-mail her at toni.quire@ky.gov.

Successful Completion of PD Requirements

In order to fulfill professional development requirements, participants must attend all required workshop days, including face-to-face workshops, Web conferences and conference calls, as well as, successfully completing all projects and tasks. A scoring rubric will be used to assess all projects and tasks. Projects will be evaluated by the facilitator.

Facilitators will work with participants when extenuating circumstances, such as a serious illness or a death in the family, occur that prevent a participant from attending a required component of a workshop or training.

Expectations

Assignments: In order to maximize the content of the institute, participants are expected to also complete all additional components—pre-work, interim work, classroom-embedded project and coaching—prior to the assigned deadline.

KYAE Experienced Instructor Institute



Attendance: Attendance is expected at all face-to-face sessions and the Web conferencing events. If a serious situation, such as a serious illness or a death in the family, prevents attendance at any session, participants are asked to notify Cindy Maggard via cell phone at 606-316-4184 in advance of the scheduled session.

Feedback form: Following each face-to-face session and each Web conferencing event, participants will complete an online survey to give feedback on the session. Participants are expected to complete the form in an open and honest manner within one week of completing the session.

Participation: Participants are expected to participate in lectures, discussions and activities in a manner that respects the beliefs, attitudes and feelings of fellow participants, facilitators and instructors and instructor's aides.

Policies

Cohorts: Participants join a cohort when they sign up for an institute in PDtrack at <https://pdtrack.kyvae.org>. Cohort participants will remain as a group throughout the length of the institute. Participants may not change cohorts once the institute has begun.

Inclement Weather Policy: Face-to-face sessions will be cancelled due to inclement weather only when the local county (county in which the session is to be held) school board closes schools. Please check area news channels for school closings. Should you have an immediate concern on the day of the session, please contact Cindy Maggard via cell phone at 606-316-4184.

KYAE Professional Development: For updated information regarding KYAE professional development policy and information, visit <http://www.kyae.ky.gov/educators/pd.htm>.

INSTITUTE SCHEDULE

<p><u>Pre-work</u> (Posted by February 18, 2010)</p> <p>Location: Online (ANGEL)</p> <p>Tasks to complete:</p> <ul style="list-style-type: none"> • Log onto ANGEL • Set up introduction • Print off and review syllabus and checklist • Complete Math Efficacy and Attitudes Survey • Complete assignment #1: <ul style="list-style-type: none"> ○ Read article and answer questions ○ Submit answers ○ Print off and bring to First Face-to-Face Session • Complete assignment #2: <ul style="list-style-type: none"> ○ Complete KYOTE Survey ○ Submit answers ○ Print off answers and bring to First Face-to-Face Session 	<p><i>Due by March 8, 2010 at 11:59 p.m.</i></p>
<p><u>First Face-to-Face Session</u></p> <p>Location:</p> <ul style="list-style-type: none"> • Kentucky Dam Village State Park • Networking luncheon at 11:00 a.m., Thursday <p>Learning:</p> <ul style="list-style-type: none"> • Overview of what our students need to know • Review assignments • Activities that help create real-life connections <p>Resources to be given:</p> <ul style="list-style-type: none"> • Participant Binder <p>Items to bring:</p> <ul style="list-style-type: none"> • Assignment #1: <ul style="list-style-type: none"> ○ Article ○ Printed answers to questions • Assignment #2: <ul style="list-style-type: none"> ○ Printed completed KYOTE Survey and answered questions <p>Assignment (Due on March 12 Face-to-Face Session):</p> <ul style="list-style-type: none"> • Choose from sample problems given and explain the DOK needed. • Think of ways to move the student to a higher DOK 	<p><i>March 11, 2010 9:00 a.m. - 4:00 p.m. and March 12, 2010 9:00 a.m. - 4:00 p.m.</i></p>

Assignment (Part of online discussion see below)

- “It is important for an instructor to have a deeper understanding of algebra to improve his/her teaching practices.” Write your reaction to this statement and defend your opinion.
- Give an example of a connection to real-life you have used (after the first session) in your math class. Was it effective? Why or why not? Keep track of your successful use of connections. We will share these at the culminating session.

Interim #1

Location:

- Online (ANGEL and Microsoft Live! Meeting)

Tasks to complete:

- Complete the feedback form on ANGEL
- Web conferencing:
 - Q & A on assignment/project ideas

Items to bring:

- Participant Binder
- All resources given at First Face-to-Face Session

March 26, 2010
9:00 a.m.-10:00 a.m.
Or
1:00 p.m.-2:00 p.m.

Optional Second Face-to-Face Session

Location:

- TBD
-

Learning:

Algebra review (content)

Resources to be given:

Items to bring:

- Any tools and resources used with students
- Resources:
 - Participant Binder

April 8, 2010
9:00 a.m. - 4:00 p.m.

Interim #2

Location:

- On the job

Tasks to complete:

- Complete the feedback form on ANGEL
- Confirm coaching visit with instructor
- Participate in coaching visit:
 - Discussion
 - Modeling
 - Observation/Feedback
 - Resource Sharing

Classroom Project (Due within two weeks of Culminating Event Session):

- Classroom profile
- Lesson plan(s) and classroom instruction plan
- Project Evaluation/Reflection

**From April 23, 2010
through
May 28, 2010**

Culminating Event Session

Location: TBD

Learning:

- Share classroom projects
- Peer resource sharing

Items to bring:

- Classroom project which includes:
 - Student/Classroom profile
 - Lesson plan(s)—bring one copy for each participant
 - Classroom instruction plan
 - Project Evaluation/Reflection
 - Student work samples
- Resources:
 - Participant Binder
 - All resources given at prior sessions

**June 3, 2010
9:00 a.m. – 4:00 p.m.
and
June 4, 2010
9:00a.m.-1:00 p.m.**

Post-Training

Location: Online (ANGEL)

Tasks to complete:

- Complete course feedback form on ANGEL
- Complete post-test

***Due by
June 11, 2010
at 11:59 p.m.***

Additional Resources