Instructor Information

Instructor: Dr. Christopher Kribs  
Office Number: PKH483 (closed during pandemic)  
Office Telephone Number: (817)272-5513  
Email Address: kribs@uta.edu  
Faculty Profile: https://mentis.uta.edu/explore/profile/christopher-kribs  
Office Hours: Tue/Thu 2:30-3:30 or by appointment, all via Teams

Course Information

Scheduled Meetings: Tuesdays 4:30-7:20PM, via Canvas Conferences and Teams  

In an effort to reduce the spread of COVID-19, and to preserve the safety and well-being of all students and employees, UT Arlington has developed an alternative class structure and special protocols for on-campus time. The procedures are consistent with recommendations from the Centers for Disease Control and Prevention, and Orders issued by the Governor of Texas.  

This course has been classified Hybrid1, which means that most class meetings will occur online.  
In this course, students will come to campus only once, for the exam on **November 24** (location TBA).

Description of Course Content

Integration of mathematics concepts in relation to the cognitive and linguistic development of English learners (ELs). Analysis of the State curriculum for mathematics in K-6. Design and implementation of instruction in dual language settings. Field experience required. Prerequisite: BEEP 3381. [UTA Catalog]

Student Learning Outcomes

This course was developed to help EC-6 teacher candidates understand developmentally appropriate practice in teaching mathematics. After completing this course, students should be able to

- Identify effective teaching strategies & behaviors that contribute to constructivist teaching, and implement constructivist teaching,
- Design and implement a mathematically rich environment that promotes learning of children’s mathematics concepts,
- Effectively promote children’s mathematics reasoning,
- Design, develop, and implement mathematics lessons for young children based on their needs aligned with standard requirements (national & state),
- Identify mathematics content expected for children at specific grade level(s).

Required Textbooks and Other Course Materials

Readings will be provided online (some via Canvas). The only item which students are required to buy is a manipulatives packet (prepared specifically for this course) available at the UTA Bookstore.


Technology Requirements: For online sessions on Canvas Conferences and Teams, students will need an Internet-connected device with a webcam and microphone (in order to participate in discussions).  
In the event that UTA campus is closed on the exam date, Respondus and Lockdown will also be used. You may access tutorials on these tools in Canvas, and should become familiar with them in advance.

State Professional and Testing Standards

National Professional and Testing Standards

Professional Dispositions
Each student/candidate in the College of Education of UT Arlington will be evaluated on Professional Dispositions by the faculty and staff. These dispositions are identified as essential for a highly-qualified professional. Instructors and program directors will work with students/candidates rated as “unacceptable” in one or more stated criteria. The student/candidate will have an opportunity to develop a plan to remediate any digressions. If digression(s) are not, or cannot be successfully remediated as in the case of an egregious digression, a determination will be made by Committee on continuation or dismissal from the College of Education.

- approved by Teacher Education Council, 2.7.12

Tk20

You will be using Tk20, a comprehensive data management system. Students are required to purchase Tk20 at [https://payment.tk20.com/ctpayment/?id=utarlington]. Tk20 is the place where you will submit key performance artifacts. For designated key assessment assignments, you must submit your work in both Tk20 and in Canvas to receive credit. On-line tutorials and training materials have been organized to orient you to the Tk20 system, and information is provided to address questions you have and how to purchase Tk20: [https://www.uta.edu/coed/tk20/index.php] and [https://blog.uta.edu/tk20/].
COVID-19 Procedures

All students, faculty, staff, and visitors on campus are expected to adhere strictly to the following safety procedures:

- Everyone must measure their temperature daily and complete the COVID-19 Self-Screening Checklist prior to coming to campus every time. Prior to coming to campus or while on campus if you are experiencing any of the following symptoms that are new, worsening or occurring in a way that is not normal for any chronic conditions you may have, please remain or return home.

  - Cough
  - Shortness of breath or difficulty breathing
  - Chills
  - Repeated shaking with chills
  - Muscle pain
  - Headache
  - Sore throat
  - Loss of taste or smell
  - Diarrhea
  - Feeling feverish or a measured temperature greater than or equal to 100.4 degrees Fahrenheit

Your presence on campus indicates that you have completed your daily self-screening, including a daily temperature check to ensure no fever and that you are not exhibiting any signs or symptoms of possible COVID-19 and that, to your knowledge, you have not come into close contact with a person confirmed positive for COVID-19.

- Masks or coverings must be worn (covering mouth and nostrils) while in campus buildings and elsewhere on campus when it’s not possible to stay 6 feet away from other people. Reusable, washable fabric face masks for individuals are available at Central Library and the information desk at the University Center.

- Maintain social distancing by keeping at least 6 feet between yourself and others.

- Classrooms, labs, and seating areas will be set up with reduced capacity to maintain the correct distance. Please do not move chairs or furniture around.

- Cleaning supplies will be available in classrooms. Please clean your work area when you arrive.

- Wash hands often with soap and water for at least 20 seconds after being in a public place, before & after eating, after touching frequently touched surfaces, after blowing your nose, sneezing, etc. If soap and water are not readily available, use hand sanitizer (at least 60% alcohol) for 20 seconds. Cover coughs and sneezes with a tissue or use the inside of your elbow.

- Avoid crowded areas or those with close-quarters, such as elevators. Take the stairs if at all possible. If taking the elevator is necessary, avoid touching the buttons with exposed fingers.

If you have been in close contact with a person who is lab-confirmed to have COVID-19, you may not return to work or class until the end of the 14-day self-quarantine period from the last date of exposure. You are required to complete the Close Contact or Personal Diagnosis Form.

In cases of close contact or symptoms, your absence from campus/classroom activities may be excused. You must communicate immediately with your instructor, especially if graded work is missed.

If diagnosed with COVID-19, you may return to campus when all four of the following criteria are met:

1. At least 3 days (72 hours) have passed since recovery (resolution of fever without the use of fever-reducing medications);
2. Improvement in symptoms (e.g. cough, shortness of breath);
3. At least 10 days have passed since symptoms first appeared; and,
4. You have obtained a note from a medical professional clearing you for return to work or class.
Institution Information

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page (https://resources.uta.edu/provost/course-related-info/institutional-policies.php) which includes the following policies among others:

- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Additional Information

Mandatory Face Covering Policy
All students and instructional staff are required to wear facial coverings while they are on campus, inside buildings and classrooms. Students that fail to comply with the facial covering requirement will be asked to leave the class session. If students need masks, they may obtain them at the Central Library, the E.H. Hereford University Center’s front desk or in their department. Students who refuse to wear a facial covering in [an on-campus] class [or exam] will be asked to leave the session by the instructor, and, if the student refuses to leave, they may be reported to UTA’s Office of Student Conduct.

Attendance
At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance.

As the instructor of this section, I follow departmental precedent by taking attendance into account for grading. One of the primary responsibilities of a teacher is to show up. Student attendance will be taken by means of Canvas Conference or Teams (whichever we use in a given week). Each student is allowed one absence for reasons of health, religion, time conflicts, etc. without penalty. Arriving substantially late or leaving early counts as half an absence. Each absence beyond the one allowed will reduce the final grade by one letter grade, even if you notify me in advance.

However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report must the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

Student Success Programs
UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring by appointment, drop-in tutoring, etutoring, supplemental instruction, mentoring (time management, study skills, etc.), success coaching, TRIO Student Support Services, and student success workshops. For additional information, please email resources@uta.edu, or view the Maverick Resources website.

* The IDEAS Center (2nd Floor of Central Library) offers FREE tutoring and mentoring to all students. Students can drop in or check the schedule of available peer tutors online, or call (817) 272-6593.
* The Writing Center (in LIBR411) offers FREE tutoring sessions face-to-face and online to all UTA students on any phase of their UTA coursework. Register and make appointments online.

Expectations for Out-of-Class Study
A general rule of thumb is this: for every credit hour earned, a student should spend 3 hours per week working outside of class. Hence, a 3-credit course may require 9 hours of reading, study, field work, etc.
Grading Information

Grading
The course grade is determined by five equal components, using the traditional ten-point conversion scale (90 A, 80 B, 70 C, 60 D). There are three major papers—the student interview, case study, and lesson paper—an exam, and a participation component which includes weekly short response papers.

Students are expected to keep track of their performance throughout the semester, which Canvas facilitates, and to seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels; see “Student Success Programs” (page 4).

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student interview</td>
<td>20</td>
</tr>
<tr>
<td>Case study</td>
<td>20</td>
</tr>
<tr>
<td>Lesson paper</td>
<td>20</td>
</tr>
<tr>
<td>Exam</td>
<td>20</td>
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<tr>
<td>Participation</td>
<td></td>
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<tr>
<td>Reflections</td>
<td>10</td>
</tr>
<tr>
<td>Class discussion</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
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Field-Based Experience

BEEP 4311 includes a field component. All students are required to complete a 20-hour field-based experience in an EC-6 classroom. The UTA CoEd Field Office coordinates field assignments. Any students who are not taking the senior BEEP internship block, and for whom the Field Office indicates that they are unable to provide a placement during the COVID-19 pandemic, should contact the instructor prior to census date for an alternative observation assignment.

All students are responsible for uploading a completed Field Experience Observation Log (blank copy available on Canvas) to their Tk20 portfolios. In addition, please upload a copy in Canvas.

Written Work Policies

Grading: Read the prompt carefully. Follow directions, and answer the question that is asked. Also, explain yourself clearly to get credit for what you meant to say. Consult the instructor if necessary.

Late Work: Each student is allowed one late submission during the semester. The paper must be submitted within one week of the deadline. The first late paper submitted will be the only one graded.

Rewrites: Each student is allowed to submit one revised major paper for a grade. Rewrites must be submitted one week before the final exam period. Students should consult with the instructor first.

Participation

Class Discussions
Our class will be primarily discussion-based, because teaching mathematics requires listening carefully to, and processing, the thinking of a diverse collection of individuals. For class to function, we need to hear from everyone. I expect participation in large-group discussion on at least ten different days this semester. This means that just asking a question in class raises your grade by 1%.

Participation includes raising questions of your own as well as responding to others’, and being prepared to contribute by having read each week’s assigned readings and bringing both the readings and your notes on them. When you think you have no answers to share, ask a question, because chances are you’re not the only one who has it. If you have difficulty speaking up in large group, write down a few questions before class which arose for you during the readings.

Of course, participation also includes appropriate, professional behavior (e.g., paying respectful attention while others are speaking, not working on outside projects, not browsing the internet, e-mail, or social media in class). When working in small groups, it helps to assign roles, to make sure the group does not stagnate: (1) facilitator/moderator, (2) recorder, (3) speaker (for the group, in whole-class discussions), (4) materials coordinator. Small groups work best with 3 or 4 members.
Reflections

On most days when no major assignment is due, you will write a short (less than a page) reflection in response to a prompt given below (completion grade=90%), to prepare for either class discussion or one of the major assignments. Some involve “action research” in which you write about your own students’ mathematical reasoning. These should be uploaded to Canvas before class starts, but make sure you have access to yours during class, for use during discussions. See calendar for due dates.

1. Definitions of even. (i) Write your own definitions for “odd” and “even”. (ii) Ask several students to define these words (use age-appropriate vocabulary, but be careful not to use suggestive terms). Report their responses verbatim (with grade level), and then compare them with your own.

2. Mini-interview. Interview a single student to see to what extent (s)he can state and justify generalizations about the result of adding two odd numbers. Use age-appropriate terms. Report and analyze his/her response. This paper should serve to set expectations for the level (but not scope) of the student interview, so see that portion of the syllabus for the general format (but not the length).

3. Shape of a problem. After solving the “Pentominoes” problem, describe only the different phases through which you passed in working on it. What realizations or decisions triggered shifts from each phase to the next? Do not present the solution—just the points when you changed your approach.

4. Defining operations. (i) Write your own (informal is fine) definitions for the four arithmetic operations. (ii) Ask several students to define or explain one or more of the four (use age-appropriate vocabulary, but be careful not to use terms like putting together and taking away, which already do most of the defining). Report their responses verbatim, and then compare them with your own definitions.

5. Mini-case study. Pose, to a group of EC-6 students, a single question like those in the cases we’ve read or seen, or from one of our class discussions. (Make sure it is age-appropriate.) Write about your question, what you expected, and what actually happened. Did anything surprise you? Give specific examples of what your students say and do. Examining the work of a few students in detail may be more helpful than trying to incorporate the responses of every student. What larger teaching issue does this connect to, for you? This paper should set qualitative expectations for the case study.

6. Analyzing multiplication strategies. Each of the following three computations uses a nontraditional multiplication algorithm to reach a correct answer. For each computation, give a rigorous (justified) analysis including answers to the following questions:

   (1) Is it mathematically sound?
   (2) If so, how far can it be extended?
   (3) Based upon the skills required and not required (relative to the traditional algorithm), what motivated the approach?

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<tbody>
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<td>(a) 2 4</td>
<td>(b) 7 2 5</td>
<td>(c) 1 2 9 0</td>
</tr>
<tr>
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<td>x 8</td>
<td>x 4 0 3</td>
</tr>
<tr>
<td>2 5 6</td>
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<td>3 6 2 7 0</td>
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<tr>
<td>+ 1 2 8</td>
<td>+ 5 1 4 0</td>
<td>+ 4 8 3 6 0</td>
</tr>
<tr>
<td>1 5 3 6</td>
<td>5 8 0 0</td>
<td>5 1 9 8 7 0</td>
</tr>
</tbody>
</table>

7. Lesson draft. See lesson paper description (items 1–3). These 3 paragraphs should run 1 page total.

8. Deconstruction & restructuring. (i) Write a formal deconstruction of the focal problem from your lesson paper, and (ii) (re)structure it at least two different ways (that is, change the presentation, not the problem itself), for students at slightly higher and lower levels. Include the original and both restructured prompts.

9. Assessing problem solving. The case study “Right or Wrong” in this week’s readings involves the grading of two student papers to the same problem. Begin by reading only the first page, including the papers by Chris and Pat. Develop an explicit 5-point grading scale or rubric for scoring responses to this specific problem only (not a generic one), and write a paragraph explaining what you think the most important issues involved in this problem are. Then apply your scale to both papers, and write a short paragraph explaining why each paper received the grade (0–5) you assigned it. Finally, read the rest of the case study, and write a paragraph in which you respond either to the issues raised in the last page of the study, or to the scores the teachers in the study gave these papers.

10. Defining area. See last page for prompt.
**Student Interview**

At the heart of mathematics teaching is the teacher’s ability to observe and analyze her students’ mathematical thinking in detail. Most often this occurs informally during class discussions, whether one on one or in a group setting. An *interview* is a formal performance assessment, in which the teacher has a one-on-one discussion with a single student to establish the limits of the student’s understanding on a specific topic. To document your ability to observe and analyze EC-6 students’ mathematical thinking, you will design, conduct, and write up an interview on an EC-6 student of your choice.

*Before* the interview, obtain the permission of the student and his/her parent(s) to conduct and record the interview, so that during the interview you can concentrate on questioning and not taking notes. Explain that the interview will not affect the student’s grade, but will help you plan for teaching. Get at least a very rough idea of the student’s familiarity with the topic (too low or too high and your interview will be short and not very informative)—perhaps a recent work sample. Prepare questions at a range of levels, as starting points for discussion. Keep focus: maintain a coherent line of questioning.

*During* the interview, use ad hoc follow-up questioning to clarify the student’s answers and press for detail. Remember that in order to establish clear limits on the student’s understanding, you must reach a question which the student cannot answer (or answers incorrectly) for reasons other than a simple careless error (and without making the student feel badly.) Keep a copy of any written work.

*After* the interview, use your recording to make a detailed analysis of the student’s mathematical thinking on the topic. Begin your report with a brief introduction to provide context. Give an overall narration of the interview. Include the specific questions or tasks that you posed, and give a full transcript of the dialogue (whether correct or incorrect answers) on which you base your summary analysis. Finally, summarize explicitly what the student does know, what the student does not know, and what the student is ready (or needs) to work on next. Papers typically run 2-5 pages.

**Case Study**

During the course we will read and discuss in class several case studies, all describing events in other teachers’ classrooms. For this assignment, you are to write a short (roughly 3–5 pages) case study describing a mathematical discussion involving one or more students, similar to these cases. A case is neither a complete transcript of a lesson nor as prefabricated as an interview, although it should include direct quotes and dialogue from students. The goal is to connect your detailed observation of children’s mathematical thinking to “big ideas” in teaching that extend explicitly beyond the topic and students in this one episode. If the interview is a “zoom-in,” this is a “zoom-out.”

You must base your case on a conversation for which you were present, and preferably in which you were involved, but it could come out of a lesson you observed, or a conversation among two or more students. You may narrow in on one or two students, or on one small group, or you may describe a whole-class conversation. The vignette may also raise more questions for you than it answers. Most important is that the episode illustrate a specific aspect of children’s mathematical thinking.

In writing your case study, begin by describing briefly the class’s larger context (including grade level) and the mathematical topic; then describe the relevant parts of the conversation in as much detail as you can manage. Include what you are thinking as you work with the students. Analyze the students’ thinking briefly. Finish up by summarizing what this case was about for you, and saying what issues and questions you still have. It is important that your reflection address teaching issues beyond the one topic and set of students involved, in order to document your ability as a reflective practitioner to make connections that inform your teaching practice more broadly.

We will discuss the writing of cases in more detail before they are due, but you are encouraged to begin sooner if you have a good conversation fresh in your mind. I will be glad to help you.
Lesson Paper

In this course we study the teaching and learning of EC-6 mathematics. To document your ability to plan, deliver, and reflect upon instruction, you will develop, teach and document an exemplary math lesson, centered around a single mathematically rich task. This paper documents that process.

1. Select or develop a rich mathematics problem intended for use with the students you teach. You may use or adapt a problem from class materials, but be sure it is appropriate for the target audience. (Say where you got it from, and, if you have used it before, in what capacity, and what you learned from it.) Be deliberate and thoughtful. Do not simply select a set of exercises from a textbook—choose a central, high-cognitive-demand task around which to build a significant problem-solving experience. The best lessons tend either to integrate multiple strands of mathematics to illustrate connections, or to address significant conceptual issues within a single strand as a summative activity following multiple experiences in developing and exploring a concept. Give the full prompt.

2. Write a paragraph explaining what concepts from this course are entailed in this problem. (You may use deconstruction to identify them, but write here in paragraph form.) Justify why the central task has a high cognitive demand, and what you hope to achieve through it. Situate in a learning trajectory.

3. Add a short (1 paragraph) narrative summary of how you’ll use this central problem in a lesson.

NOTE: The lesson draft is a rough draft of items 1-3 above. It must fit on a single page. Use the feedback from it to revise items 1-3 (still on one page) and guide the lesson design in part 4.

4. Write a lesson plan in outline form. Include all data necessary for someone else to teach the lesson, e.g., prerequisite knowledge, all student prompts, important discussion points, and closure activities.

5. Teach the lesson to your students (see me if this is problematic). Then write a one-page reflection on how the lesson went, including what strategies students used to approach the problem, what ideas were raised in its discussion, and to what extent your students’ understanding of the underlying concepts—or ability to apply them—changed as a result of the lesson. Be specific. If your cooperating teacher will not allow you to teach it as you believe it should be taught, write the lesson plan nevertheless as you believe it should be taught (this is documentation of your ability to design an exemplary lesson), and then address in your reflection any digressions from the lesson plan.

6. Make a one-page handout (you may use front and back if necessary, but it must fit on one sheet) summarizing your lesson for the class. Include the problem, grade level, mathematical topics addressed, and anything your colleagues would need to know in order to use the lesson, including how to avoid procedurализing, and (briefly) any difficulties the students tended to encounter. The handout should not be the same as your lesson plan (select details!), and must be turned in with the main paper.

I invite you to discuss your ideas with me. NOTE: This paper is a key assessment and must be uploaded to Tk20 as well as Canvas.

Exam

A comprehensive exam will be given in this course just before the Thanksgiving break. It will consist mostly of short-answer (1 or 2 sentences) questions, with a couple of longer essays at the end. If the UTA campus remains open at the time of the exam, the instructor will announce the exam room in advance. In this case, the exam will be closed-book and closed-notes in general, but students will be allowed to bring in a single 5"x7" card with any desired notes written on both sides. The exam will be discussed in further detail in class, and some sample questions will be posted to Canvas.

If the UTA campus is closed on the exam date, the exam will be proctored on Canvas using Respondus and Lockdown browser. Please familiarize yourself with these platforms in advance, and ensure your uninterrupted Internet access during the exam (class) period.

There will be no make-up exam.

BEEP 4311-001, Fall 2020, Page 8
# Course Schedule

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. [Note: stars * indicate required student interaction.]

<table>
<thead>
<tr>
<th>Date</th>
<th>Wk</th>
<th>Topic</th>
<th>Readings Due</th>
<th>Homework Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 01</td>
<td>1</td>
<td>Overview</td>
<td>none (RAO17 in class)</td>
<td>none</td>
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<tr>
<td>Sep 08</td>
<td>2</td>
<td>Defining</td>
<td>RAO1, TM2.1</td>
<td>*R1 defn. even</td>
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<td>Sep 15</td>
<td>3</td>
<td>Representations</td>
<td>Ferrini-Mundy et al., Flores, Marshall et al., RAO25</td>
<td>*R2 mini interview</td>
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<tr>
<td>Sep 22</td>
<td>4</td>
<td>Problem solving</td>
<td>Stein &amp; Smith, MMO21</td>
<td>R3 shape of a problem</td>
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<tr>
<td>Sep 29</td>
<td>5</td>
<td>Modifying tasks</td>
<td>TBA</td>
<td>*Student interview</td>
</tr>
<tr>
<td>Oct 06</td>
<td>6</td>
<td>Generalization &amp; proof</td>
<td>TBA</td>
<td>*R4 defn. operations</td>
</tr>
<tr>
<td>Oct 13</td>
<td>7</td>
<td>Early math &amp; place value</td>
<td>TBA</td>
<td>*R5 mini case study</td>
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<tr>
<td>Oct 20</td>
<td>8</td>
<td>The arithmetic operations</td>
<td>TBA</td>
<td>R6 analyzing strategies</td>
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<tr>
<td>Oct 27</td>
<td>9</td>
<td>Computational fluency</td>
<td>Baek,BST16,17,RAO27,MMO25</td>
<td>*Case study</td>
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<tr>
<td>Nov 03</td>
<td>10</td>
<td>Rational numbers</td>
<td>MMO18-19</td>
<td>R7 lesson draft</td>
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<td>Nov 10</td>
<td>11</td>
<td>Operating on fractions</td>
<td>MMO20-22,25,27, FDRP7, Tsankova</td>
<td>R8 task modification</td>
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<tr>
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<td>Class norms &amp; assessment</td>
<td>Ball, Bush36</td>
<td>R9 assessing prob. solving</td>
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<td>EXAM</td>
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<tr>
<td>Dec 01</td>
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<td>R10 defn. area</td>
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<tr>
<td>Dec 08</td>
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<td>Measurement</td>
<td>MSP18,21,23,24,Bush20</td>
<td>Rewrite (optional)</td>
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<tr>
<td>Dec 15</td>
<td>16</td>
<td>TBA</td>
<td>none</td>
<td>TBA</td>
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Readings listed are provided in Canvas.

**Reflection 10. Defining area.** (a) Is the definition of “area” in your dictionary good enough to explain the meaning of the term to someone who had never heard the concept before? If not, how does it fail? Imagine you have a student with the learning disability “uni-dimensia”, where they persistently think of everything in terms of length only (e.g., they think a skinny triangle “takes up more room” than a fat one). Try to write a definition of “area” that will work even on such a student. Also be sure to distinguish area from volume. (b) How could you compare two triangles such as those at right to determine which is bigger?

Revised 2020-09-08