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A Vision for Student-Centered Curriculum in the 21st Century: Enabling Customization through Competency-Based Learning in a Blended Environment
Outcomes

• Examine a model for curriculum development that uses competency-based learning as a means of customizing students’ learning pathways as they master standards.

• Discuss strategies for implementing large-scale curriculum and instruction changes
About BCPS

- 25th largest school system in the U.S., 3rd largest in Maryland
- $1.76 billion budget, FY 2016

- 111,460 students (2015-2016 enrollment)
  - 0.4% - American Indian/Alaskan Native
  - 6.7% - Asian
  - 38.8% - Black/African American
  - 7.7% - Hispanic/Latino
  - 0.1% - Native Hawaiian/Other Pacific Islander
  - 4.2% - Two or More Races
  - 42.1% - White

- 3.7% ELL
- 47.4% FARMS
- 11.4% Special Education
About BCPS

- 175 schools, programs, and centers
- 18,783 employees
- 8,792 classroom teachers
BCPS Theory of Action

• To equip every student with the critical 21st century skills needed to be globally competitive, BCPS must ensure that every school has an **equitable**, effective digital learning environment.

• All students will have access to a digital learning device and personalized, blended, interactive curriculum.
What is our GOAL?

What does a globally competitive STUDENT look like?

What does a globally competitive CURRICULUM look like?

What does a globally competitive TEACHER look like?
Eight Conversions

1. Curriculum
2. Instruction
3. Assessment
4. Organizational Development
5. Infrastructure
6. Policy
7. Budget
8. Communication

Globally Competitive Students
Competency-Based Learning

• A system of instruction, assessment, grading, and academic reporting based on students demonstrating that they have learned the knowledge and skills they are expected to learn as they progress through their education.

• Equitable student-centered learning for all.
What is Student Centered Learning?

• Customized Learning: Instructional design in which the sequence and selection of learning experiences for each student is driven by teacher decisions. The teacher bases decisions upon student formative assessment data and learner profile.
  → Key Concept: Teacher adjusted instruction based upon data

• Personalized Learning: Instructional design in which the student takes an active role in their learning through choice in sequence and selection of learning experiences based on standards, interests and learning preferences.
  → Key Concept: Student Choice in learning experiences
Digital Ecosystem

- Learning Management
- Student Information
- Reporting
- Employee Effectiveness
- Professional Learning
- Digital Resources
- Legacy Systems

Single Sign-on
24/7 Access

PEARSON
Welcome TO BCPS ONE

Access BCPS One

- Click Here to Log In
- Forgot Your Password? Create A myBCPS Account

Access, Collaboration, and Productivity

BCPS One promotes access, collaboration, and productivity while streamlining administrative processes for all users.

Welcome EDUCATORS

- LEARNING MANAGEMENT
- DIGITAL CONTENT
- INSTRUCTIONAL TOOLS
- STUDENT INFORMATION
- PROFESSIONAL LEARNING
- EMPLOYEE EFFECTIVENESS
- BCPS ONE MANUAL
- Sems
- TIENT
- BCPS INTRANET
- STUDENT ATTENDANCE SCHOLARSHIP PILOT

ALWAYS LEARNING
Teacher-Centered

Teacher
- planning
- classroom environment
- instruction

Space
- furniture
- orientation
- visuals

Student
- acquiring
- developing
- using
- producing
Learner-Centered

Teacher
- planning
- classroom environment
- instruction

Space
- furniture
- orientation
- visuals and resources

Student
- acquiring
- developing
- using
- producing
Defining Curriculum

Non-negotiables

• Desired Results
• Assessment Evidence
• Core Learning Plan

Negotiables

• Potential Pathways
• Innovative instructional strategies and resources
Attributes of Student Centered Curriculum

Desired Results:
– Empowers students with explicit, measurable, transferable learning goals.

Assessment Evidence:
– Provides meaningful and positive learning experience for students.
– Provides students with opportunities to apply what they know and are able to do in real-world situations.

Core Learning Plan:
– Supports personalized and customized instruction.

*Alignment to standards remains a critical component of a viable, guaranteed curriculum*
Curriculum must include explicit, measurable, learning goals (learning targets) that empower students
Student will:

- Recognize or recall specific vocabulary (for example, energy change, energy distribution, thermal energy, thermal equilibrium)
- Describe the key parts of the second law of thermodynamics

Student will:

- Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in more uniform energy distribution among the components of the system
“I Can” statements are designed to align to cognitive complexity levels

Taxonomies of Learning

BLOOM’S TAXONOMY – Original (1956)
Knowledge → Comprehension → Application → Analysis → Synthesis → Evaluation

REVISED BLOOM’S TAXONOMY – Anderson and Krathwohl (2000)
Remembering → Understanding → Applying → Analyzing → Evaluating → Creating

WEBB’S DEPTH of KNOWLEDGE (1997)
Recall and Reproduction → Skill/Concept → Strategic Thinking → Extended Thinking

- Foundational Knowledge & Skills
- Complex Knowledge and Skill
# Developing “I Can” Statements

<table>
<thead>
<tr>
<th>Target Type</th>
<th>Content Standards Key Words</th>
</tr>
</thead>
</table>
| **Knowledge Targets**  
*What I need to know*      | Explain, understand, describe, identify, tell, name, list, define, label, match, choose, recall, recognize |
| **Reasoning Targets**  
*What I can do with what I know* | **Analyze:** components, parts, ingredients, dissect, examine, order  
**Compare/Contrast:** discriminate between, similarities and differences, juxtapose  
**Synthesize:** combine into, blend, formulate, adapt, modify  
**Classify:** categorize, sort, group, give examples  
**Infer/Deduce:** Interpret, draw conclusions, predict, generalize  
**Evaluate:** justify, support opinion, think critically, appraise, debate, defend, prove |
| **Skill Targets**  
*What I can demonstrate* | Observe, listen, perform, do, question, conduct, read, speak, assemble, demonstrate, measure, investigate, collect, explore |
| **Product Targets**  
*What I can make to show my learning* | Design, produce, create, develop, make, write, draw, represent, display, model, construct |

Adapted from Stiggins, Arter, Chappuis, and Chappuis “Classroom Assessment for Student Learning”
# Developing “I Can” Statements

<table>
<thead>
<tr>
<th>Target Type</th>
<th>I can statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge Targets</strong></td>
<td></td>
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<tr>
<td><em>What I need to know</em></td>
<td></td>
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<tr>
<td><strong>Reasoning Targets</strong></td>
<td></td>
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<tr>
<td><em>What I can do with what I know</em></td>
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<tr>
<td><strong>Skill Targets</strong></td>
<td></td>
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<tr>
<td><em>What I can demonstrate</em></td>
<td></td>
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<tr>
<td><strong>Product Targets</strong></td>
<td></td>
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<tr>
<td><em>What I can make to show my learning</em></td>
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</tbody>
</table>
## Unit: Number Theory and Operations

### Essential Questions
- The “big picture”
  - How is mathematics used to quantify and compare situations, events, and phenomena?
  - What are the mathematical attributes of objects or processes, and how are they measured or calculated?
  - What do effective problem-solvers do, and what do they do when they get stuck?

### Knowledge Targets
**What I need to know**
- I can add, subtract, multiply, and divide multi-digit numbers using the standard algorithms.
- I can find the Greatest Common Factor (GCF) of two or more whole numbers.
- I can find the Least Common Multiple (LCM) of two or more whole numbers.
- I can find the quotient of fractions by fractions.
- I can define the following terms in relation to the topics of this unit:
  - Factor
  - Multiple
  - Quotient

### Reasoning Targets
**What I can do with what I know**
- I can identify the question and facts in word problems.
- I can determine the appropriate mathematical operation to solve a problem.
- I can use estimation skills to approximate an answer and analyze the reasonableness of an answer.
- I can use the distributive property to express the sum of two numbers with a common factor.
- I can use the GCF to solve a word problem.
- I can use the LCM to solve a word problem.
- I can solve word problems involving addition, subtraction, multiplication, and division of fractions.

### Skill Targets
**What I can demonstrate**
- I can compute and interpret quotients of fractions.
- I can use visual models or equations to solve problems involving quotients of fractions.
- I can solve word problems involving division of fractions.

### Product Targets
**What I can make to show my learning**
- I can use fractions and decimals to design a porch railing and bookcase. (Fraction Fixers)
Attributes of Student Centered Assessment

• Assessments are meaningful and positive learning experiences for students.

• Assessments provide students with multiple opportunities to apply what they know and are able to do in real-world situations.

  Assessments are aligned to the desired results (Standards, Essential Questions, I Can Statements)
Assessments provide students with opportunities to apply what they know and are able to do in real-world situations.
Supporting Student-Centered Instruction

• Curriculum, assessments, and instruction all ensure students are leaders in their own learning
• Instruction includes opportunities for students receive timely feedback, customized support based on their individual needs
• Small group instruction is used to support customized learning.
To support customized instruction, curriculum will include learning tasks that align with “I Can” statements and cognitive complexity levels.

1. Knowledge
   - Foundational Knowledge & Skills
2. Reasoning
3. Applying Skills
   - Complex Knowledge and Skill
4. Producing Products
Curriculum supports personalization and customization

**Customized**
- Teacher adjusts instruction based on data
- Learning tasks align to performance levels

**Personalized**
- Student choice in the learning style

Task 1: 3, 2, 1
Task 2: 3, 2, 1

Learning Styles:
- Noisy / Quiet
- Sitting Down / Standing Up
- One Task / Multi-task
- Independent / In a Group
- Moving Around / Sitting Still
### Writing Standards

**Text Types and Purposes**

<table>
<thead>
<tr>
<th>Proficiency Level</th>
<th>CCSS</th>
<th>Learning Task</th>
<th>Cognitive Growth Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>W.4.1</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td>Your teacher has given you a new topic to write about. The first thing you are to do is create a Venn diagram of the pros and cons of the topic. When you have done that, you will pick one of the sides and then write a sentence that clearly states your opinion. The principal is proposing that students should begin to wear a uniform to school every day. You are going to write a letter to the principal of the building regarding the proposed student uniform policy. You can pick a side, either for or against the policy. Be sure that you clearly state your opinion and carefully structure and organize the ideas that support the opinion. Write a letter to the author of the book you are reading. You think that the book could have a better ending. In your letter, state your opinion clearly and then write a well-organized paragraph stating your reasons why she should consider changing the ending.</td>
<td>reasoning</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Your teacher has given you a new topic to write about. The first thing you are to do is create a T-chart of the pros and cons of the topic. When you have done that, you will pick one of the sides and then write a sentence that clearly states your opinion. The principal is proposing that students should begin to wear a uniform to school every day. You are going to write a letter to the principal of the building regarding the proposed student uniform policy. You can pick a side, either for or against the policy. Be sure that you clearly state your opinion. Then make a list of all of the reasons why the principal should support your opinion. Write a letter to the author of the book you are reading.</td>
<td>analyzing</td>
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</tbody>
</table>

Students will write opinion pieces on topics or texts, supporting a point of view with reasons and information (W.4.1)
<table>
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<tr>
<th></th>
<th><strong>I can write opinion pieces on topics or texts, supporting a point of view with reasons and information. I can introduce a topic or text clearly but need help stating an opinion and creating an organizational structure in which related ideas are grouped to support the writer's purpose.</strong></th>
<th><strong>Your teacher has told you to write about asking the lunch ladies to serve more pizza for lunch. First you will write a sentence that states your opinion about this topic. Finally, you and a partner are going to brainstorm and see how many ideas you can come up with that support your opinion. Student will write a letter to the principal of the building regarding the proposed student uniform policy. The student should pick a side, either for or against the policy. The student will need help to clearly state his/her opinion and structuring and organizing the ideas that support the opinion. Working with others in a small group, the students should come up with a list of ideas to support this opinion. You have finished reading a book and now you are going to write a letter to the author. You are going to tell him/her that you really liked the book, or that you really didn't like the book. Be sure that you write at least three reasons for your opinion.</strong></th>
<th><strong>comprehending</strong></th>
</tr>
</thead>
</table>
# The Lesson Block

<table>
<thead>
<tr>
<th>Pedagogy</th>
<th>Proficiency Scales</th>
<th>Intelligence Preferences/ Interests</th>
<th>Learning Styles</th>
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<tbody>
<tr>
<td></td>
<td>Academic Readiness</td>
<td></td>
<td>Noisy / Quiet</td>
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<td>Sitting Down / Standing Up</td>
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<td></td>
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<td>One Task / Multi-task</td>
</tr>
<tr>
<td>Focus Question</td>
<td>Customized Learning</td>
<td>Cartoonist 4</td>
<td>Independent / In a Group</td>
</tr>
<tr>
<td>Activate Prior Knowledge</td>
<td></td>
<td>Screenwriter 4</td>
<td>Moving Around / Sitting Still</td>
</tr>
<tr>
<td>Task 1</td>
<td></td>
<td>Animator 4</td>
<td></td>
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<tr>
<td>Task 2</td>
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<tr>
<td>Performance Task</td>
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<tr>
<td>Extension</td>
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</tbody>
</table>

Task 1: Cartoonist 4, Screenwriter 4, Animator 4
Task 2: Cartoonist 4, Screenwriter 4, Animator 4
Models of Small Group Instruction

Guided Group with Teacher

Same Practice for Everyone

Same Application of Assessment for Everyone

Individual or Collaborative Application
Instruction includes opportunities for students to receive timely feedback, customized support based on their individual needs.

- **Learning progressions** clearly articulate the pathway typical students travel to meet the learning goal.
- **Learning goals and success criteria** are clearly defined and shared with students.
- **Descriptive feedback** is evidence-based and aligned to learning goals and success criteria.
- **Self and peer-assessment** are used frequently to encourage students to understand and internalize success criteria.
- **Collaboration** in the classroom creates a culture in which teachers and students are partners in learning.
<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Guiding Questions</th>
<th>Teaching and Learning Framework Connection</th>
</tr>
</thead>
</table>
| Teacher    | What teacher behaviors contribute to a learner-centered environment for all students? | **Domain I**: Preparation and Planning  
- Teacher understanding of individual learners' strengths, needs, culture, and interests promotes personalization and customization.  
- Teacher understanding of available culturally responsive resources promotes student choice.  
- Teacher design of on-going assessment/feedback promotes responsive, small group instruction.  
**Domain III**: Instruction  
- Both teacher and student initiate communication.  
- Questioning is high level and promotes multiple ways to respond, including further questioning.  
- Learning activities and selected pedagogical strategies promote cognitive engagement.  
- Formative assessment is used to monitor individual progress and make responsive decisions.  
- Timely feedback is provided so students can make decisions about their learning. |
| Student    | How are all students (by race, gender, English language competency, or disability) acquiring, developing, using, or producing knowledge, information and skills? | **P21**:  
- All students are actively acquiring core disciplinary knowledge.  
- All students use collaboration and communication to facilitate their learning.  
- All students have choice with regard to process and product.  
- All students use critical thinking and problem solving.  
- All students engage in tasks that require adaptability and flexibility.  
- All students have opportunities to create and innovate.  
- All students are exposed to authentic, real-world contexts.  
- All students use of digital tools and content allow them to acquire, develop, and demonstrate knowledge and skills. |
Outcomes

• Examine a model for curriculum development that uses competency-based learning as a means of customizing students’ learning pathways as they master standards.

• Discuss strategies for implementing large-scale curriculum and instruction changes