

# Developing Systems of Assessment

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**National Center for Research  
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# Overview

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- Assessment systems: two views
- Examples of each
- Validity issues
- Implementation challenges

# Systems Serving Multiple Purposes

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1. Formative: Integrate instruction and assessment to facilitate significant science learning
2. Summative: multiple measures to provide comprehensive, standards-based view
3. Multi-level: feedback to serve accountability and improvement for multiple stakeholders

# Coherent Systems: Formative and Summative



End of the Year Assessment  
Builds K-12 to College Readiness

# Examples of Integrated Systems

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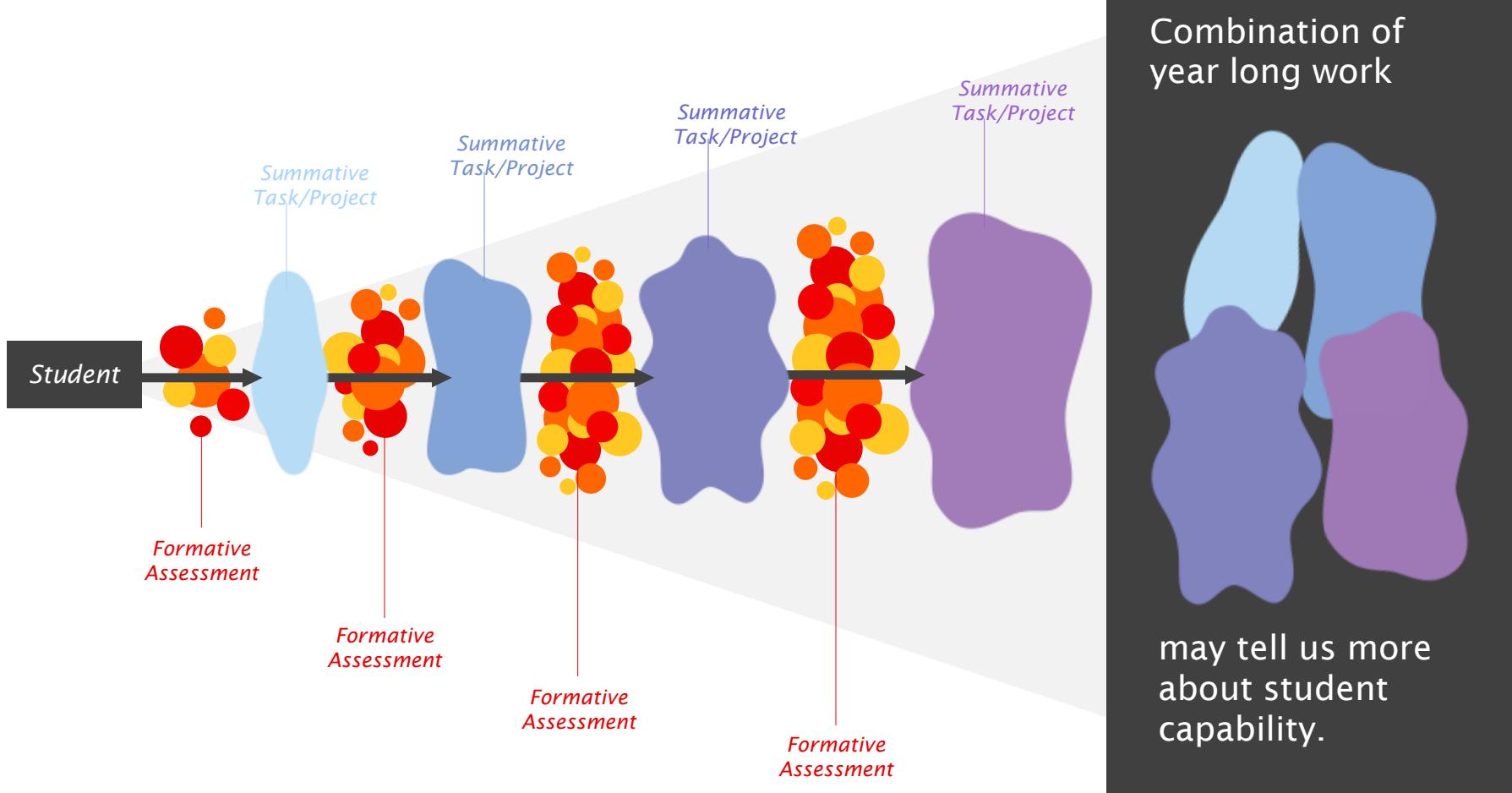
- SimScientists
- IQWST
- 3-Dimensional Fused Knowledge
- Display-based reasoning
- AP Exam

# Validity Criteria for Coherent Formative Systems

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- Focused on rich goals
- Learning-based
- Aligned/coherent
- Reliable
- Valid
- Accessible/fair
- Diagnostic
- Actionable
- Credible/meaningful
- Consequences

# Coherence: Accountability and Classroom Evidence



# System Examples Combining Classroom and On-Demand Tasks

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- RI Diploma System
- Queensland
- Both rely largely on educator judgment

# Rhode Island High School Diploma Requirement (2014)

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- District designed, standards aligned
- Proficiency requirements, based on two of three:
  - ✓ *Exhibition*
  - ✓ *Portfolio*
  - ✓ *Comprehensive end of course exams*
- State assessment score at least partially proficient
- Rigorous criteria and quality control

# Portfolio Tasks

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- Variety of task types
  - ✓ *On-demand task*
  - ✓ *Extended task*
  - ✓ *Mini-exhibition*
  - ✓ *Exhibition*
- Developmental progression/rigor
  - ✓ *Classroom*
  - ✓ *School*
  - ✓ *PBGR*

# Exhibition: Senior Project

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- Applied learning goals:
  - ✓ *Problem solving*
  - ✓ *Communication tools and techniques*
  - ✓ *ICT tools and techniques*
  - ✓ *Self management*
- Personalized, choice
- Project examples: Core question -→ design a product/service, improve a system, trouble shoot, plan and organize an event/activity

# Queensland Senior Certificate

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- State establishes content standards/goals for 2-year syllabus in each content area
- Local schools develop specific, locally adapted course of work, specifying content, instruction and assessment (formative and summative) activities
- Local course accredited by external review board
- Teachers evaluate their students on a 5-point standards-based scale
- Teacher ratings reviewed through moderation cycles
- General, standardized test supports moderation and comparability

# Queensland Assessment

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- Varied task types:
  - ✓ *Extended experimental investigations: 4 weeks +*
  - ✓ *Extended response tasks involving research and secondary data: 2 weeks +*
  - ✓ *Supervised (on-demand) tasks*
- Curriculum-based, formative activities, with feedback, build to summative success

# Queensland Assessment

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- 11<sup>th</sup> grade “monitoring” tasks build to more demanding 12<sup>th</sup> grade “verification” tasks
- Final assessment based on work products distributed over time
- Exit standards assessed through principles of
  - ✓ *fullness (fully represent expected standards)*
  - ✓ *Latest (recent accomplishment supercedes)*

# Validity Criteria for Multi-purpose Systems

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- Meaningful, transferable scientific knowledge, practices and predispositions
- 3 C's: Comprehensive, Coherent, Continuous
- Instructionally sensitive
- Valid/fair for each intended purpose
- Useable/useful for intended purposes
- Feasible
- Consequences

# Challenges in Moving Ahead

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- Coherence of standards' tri-part progression
- Availability of instructional resources
- Teacher capacity
- Technical dilemmas
- Socio-political dispositions



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