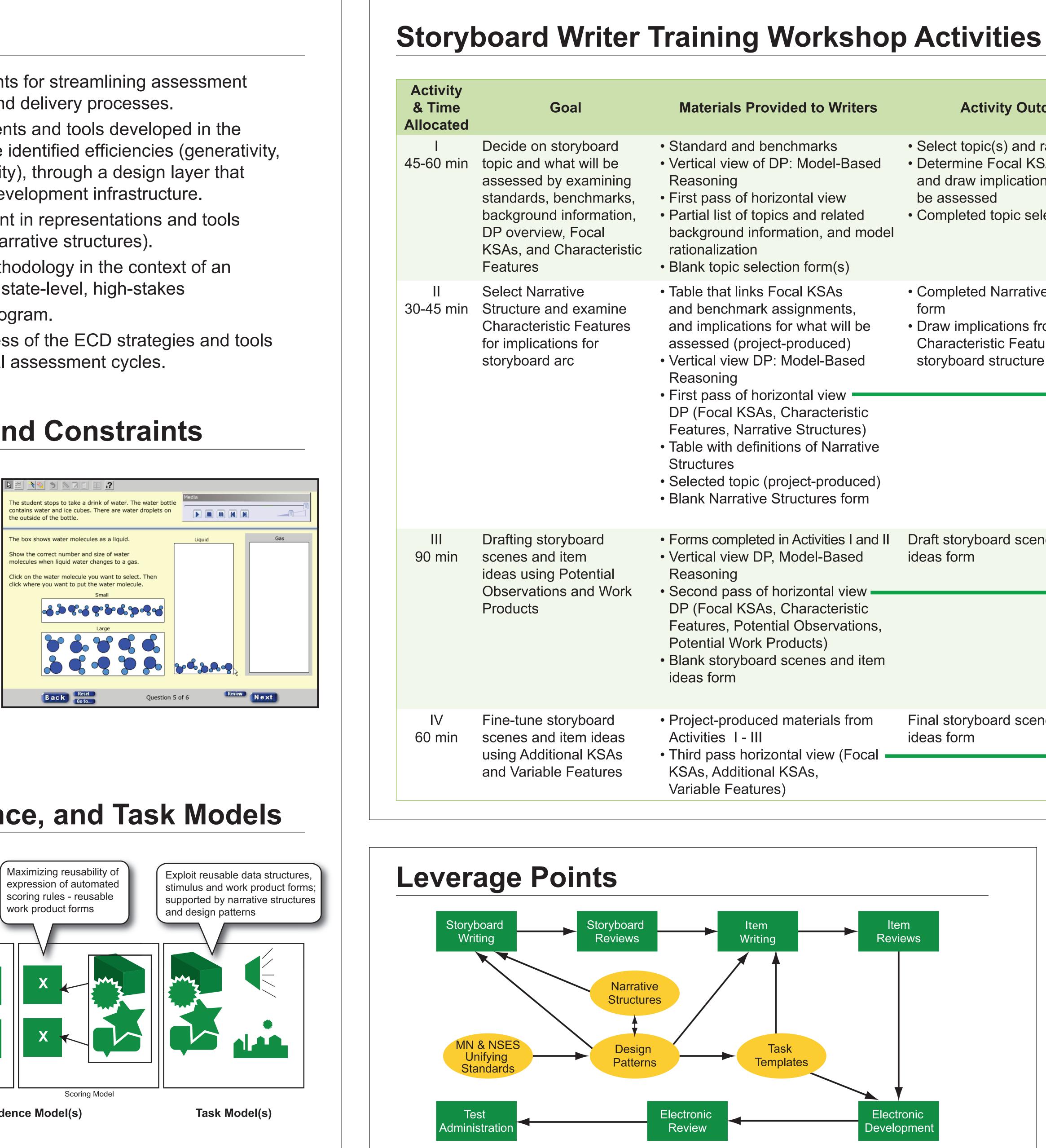


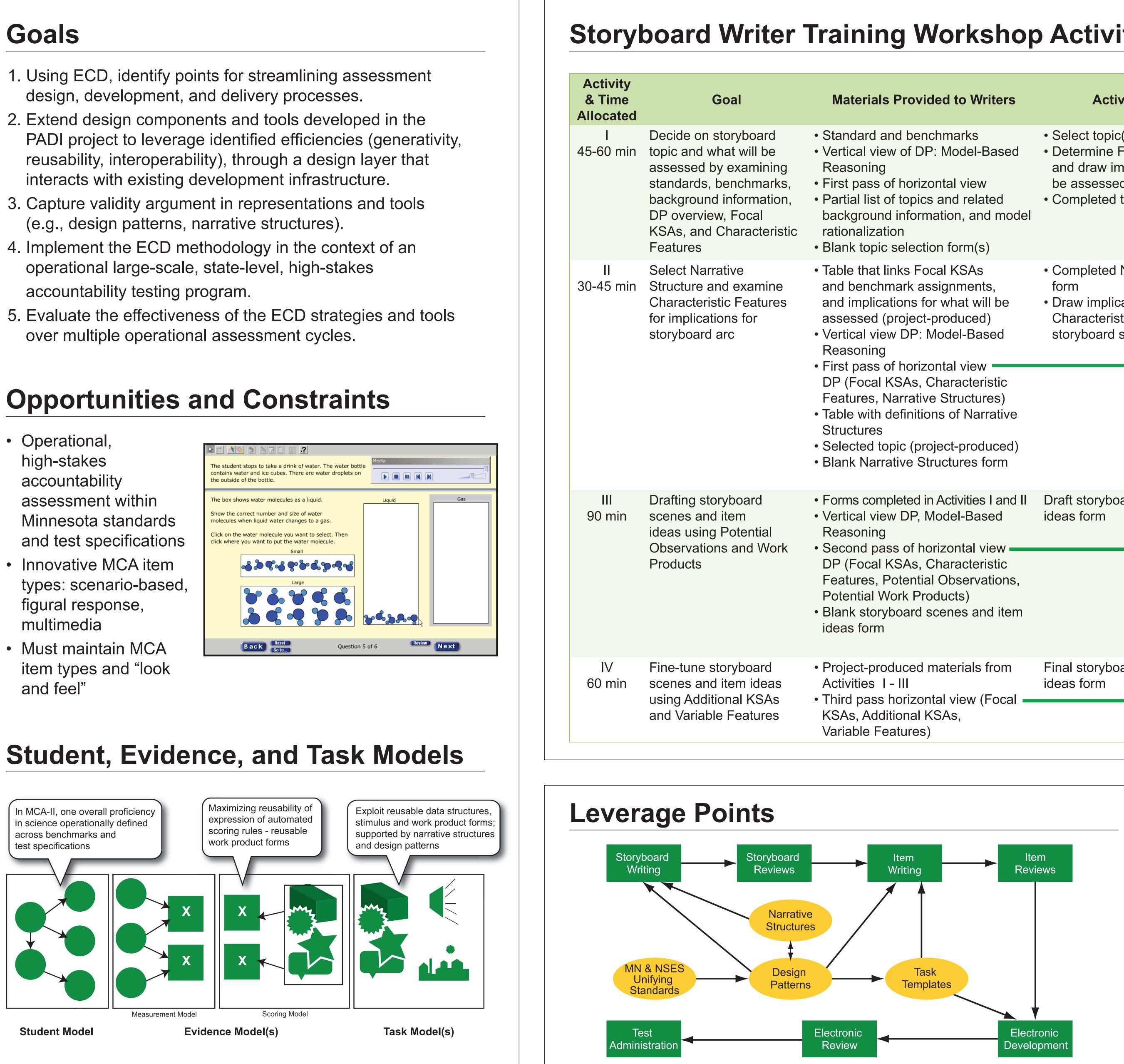
Evidence-Centered Design in Large Scale Science Assessment

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- design, development, and delivery processes.
- reusability, interoperability), through a design layer that interacts with existing development infrastructure.
- (e.g., design patterns, narrative structures).
- operational large-scale, state-level, high-stakes
- over multiple operational assessment cycles.

- high-stakes accountability assessment within Minnesota standards
- figural response, multimedia
- item types and "look and feel"







Project site: http://ecd.sri.com/

Customized Design Pattern Views

		Anchor:		Associated:		Associat	ed:	
to Writers	Activity Outcomes	Characteristic features	v bo	Focal Knowledge, Ski		Narrative		
marks Jodel-Based al view nd related ion, and model	 Select topic(s) and rationalize Determine Focal KSAs required and draw implications for what will be assessed Completed topic selection form(s) 	provisional model that i inadequate in some wa the opportunity to revi	 Cf1. A situation to be modeled, a provisional model that in inadequate in some way, and the opportunity to revise the model in a way that improves the fit FK2. More specifically: Recognizing the need to revise a provisional model. FK3. Modifying the provisional mode appropriately and efficiently. FK4. Justifying the revisions in term of the inadequacies of the provisional model. 			ts <u>Change over time</u> <u>General to Specific or Whole to Part</u> <u>Investigation</u> <u>Specific to general and Parts to</u> <u>whole</u> <u>Topic with examples</u>		
form(s)								
l KSAs	Completed Narrative Structure	Anchor: Characteristic features	Associated: Focal Knowled	ge, Skills, and Abilities 🛛 💌	Associated: Potential observations	~	Associated: Potential work products	
gnments, what will be oduced) odel-Based tal view aracteristic Structures) s of Narrative ect-produced) ctures form	form • Draw implications from the Characteristic Features about the storyboard structure Draft storyboard scenes and item	Cf1. A situation to be modeled, a provisional model that in inadequate in some way, and the opportunity to revise the model in a way that improves the fit	provisional model that inmodify a given model so that itsinadequate in some way, andfeatures better match thethe opportunity to revise thefeatures of that situation formodel in a way that improvesthe purpose at hand.		 to revise their Po3. Quality of the listudents decided model is adequed Po4. Quality of explained basis on which that a revised adequate Po5. Efficiency of the which students existing models revised models , including use of strategies, seques monitoring The can be applied revision is part investigation. Po6. Extent to which extract true results of false models them as independent. 	in order to uacies of el. appropriateness or domain- ics students use models. basis on which e that a revised ate mation of the students decide model is e process by evaluate as deficient and as adequate of optimal uence, his observable when model of a larger	 Pw1. Choice or production of revised model Pw2. Explanation of reasoning for revised model Pw3. Trace of models as constructed/revised (e.g., sequence of Genetics Construction Kit (GCK) models) Pw4. Recordings or transcripts of what students said as they "thought aloud" while revising model Pw5. Computer-kept records of inquiry steps in which model revision steps are embedded Pw6. Notes written by students during model revision 	
del-Based	ideas form							
		Anchor: Focal Knowledge, Skills, and Abilities		<mark>ssociated:</mark> Additional Knowledge, Skills, (<mark>ssociated:</mark> /ariable features	~	
zontal view aracteristic Observations, ucts) enes and item		 FK1. Ability, in a given situation, to given model so that its features match the features of that situation the purpose at hand. FK2. More specifically: Recognizing to revise a provisional model. FK3. Modifying the provisional mode appropriately and efficiently. FK4. Justifying the revisions in term 	 FK1. Ability, in a given situation, to modify a given model so that its features better match the features of that situation for the purpose at hand. FK2. More specifically: Recognizing the need to revise a provisional model. FK3. Modifying the provisional model appropriately and efficiently. 		 译 AK1. Ability to detect anomalies not explained by existing model (i.e., model evaluation) 译 AK2. Familiarity with real-world situation 译 AK3. Domain area knowledge (declarative, conceptual, and procedural) 译 AK4. Familiarity with required modeling tool(s) 译 AK5. Familiarity with required symbolic representations associated procedures (especially statistical methods) 译 AK6. Familiarity with task type (e.g., 		 Vf1. Is the model-to-be-revised given, or was it developed by the student in the course of an investigation? Vf2. In what way is the model unsatisfactory: Lack of fit to observations, inappropriateness to project goal, wrong grain size or aspects of phenomenon? Are the unsatisfactory aspects provided to the student, or to be discovered through model evaluation? Vf3. Is model revision iterative, with feedback? Vf4. To what degree is the model revision prompted? Vf5. Is problem context familiar (i.e., degree of 	
aterials from	Final storyboard scenes and item ideas form		9	materials, protocols, expectations) 詹 AK7. Ability to engage in model use		唱 Vf6. Complexit 唱 Vf7. Complexit variables,	transfer required)? Vf6. Complexity of problem situation Vf7. Complexity of the model; i.e., number of variables, complexity of variable relations, number of representations required, whether	
l view (Focal <mark>—</mark> As,						the mode 뚢 Vf8. Group or 뚢 Vf9. Is extrane	l is runnable)	

Project Evaluatic						
Goal	Focus/Evi					
Efficiency/ Streamlining	Impact of E developmen					
Validity	Use and imp (i. e., Design					
Development of Human Capacity	Observation project team					
Dissemination	Presentation sessment D					

This material is based upon work supported by the National Science Foundation under Grant No. DRL-0733172. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.



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dence

- CD-based structures such as Design Patterns on nt time and writing process
- pact of argument structure supports n Patterns)
- ns and surveys of storyboard and item writers and n members
- ons, reports, Web-based resources including As-Design Support Tools (e.g., Design Patterns)

