Strategies to Create a Coherent Science Content Storyline
Analysis Guide D1:
Selecting and Using Content Representations

Main learning goal: Trait variations in individual plants or animals of the same kind and the environment affect which plants or animals survive and which don't.

Description of content representation: Three-environments content representation. Students use a graphic of two cottonwood trees and three different environments to predict whether big or small cottonwood seeds are more likely to survive and grow when the wind blows them away from the parent tree to one of the three environments.

Part 1: Selecting the Content Representation

Is the Content Representation …	Yes	No
1. Scientifically accurate?		
2. Closely matched to the main learning goal?		
3. Presenting science ideas in ways that are comprehensible to students?		
4. Reinforcing or introducing student misconceptions?		
5. Addressing common student misconceptions?		
6. Distracting students from the main learning goal with too many details or new terms?		

Part 2: Engaging Students in Using the Content Representation

Is the Content Representation Used in a Way That Involves Students In …	Yes	No
1. Modifying or creating the content representation?		
2. Analyzing the meaning of the content representation?		
3. Critiquing the content representation?		

Part 3: Suggestions for Improvement

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Strategies to Create a Coherent Science Content Storyline
Analysis Guide D2:
Selecting and Using Content Representations

Main learning goal: Variations in traits and the environment affect which plants or animals of the same kind survive long enough to produce young (seeds/babies), and thus, which variations become more common in the next generation.

Description of content representation: A dandelion story. Students use a graphic of dandelions in a city park to show what happens when a lawn mower mows over short and tall dandelions in the grass. Then students explain which dandelions are more likely to survive and produce new dandelion plants.

Part 1: Selecting the Content Representation

Is the Content Representation …	Yes	No
1. Scientifically accurate?		
2. Closely matched to the main learning goal?		
3. Presenting science ideas in ways that are comprehensible to students?		
4. Reinforcing or introducing student misconceptions?		
5. Addressing common student misconceptions?		
6. Distracting students from the main learning goal with too many details or new terms?		

Part 2: Engaging Students in Using the Content Representation

Is the Content Representation Used in a Way That Involves Students In …	Yes	No
1. Modifying or creating the content representation?		
2. Analyzing the meaning of the content representation?		
3. Critiquing the content representation?		

Part 3: Suggestions for Improvement

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Strategies to Create a Coherent Science Content Storyline
Analysis Guide D3:
Selecting and Using Content Representations

Main learning goal: Trait variations in plants or animals of the same kind affect which plants or animals survive and which don't.

Description of content representation: Cottonwood-seed model. Students use a model consisting of a fan and different-sized cotton balls (large and small) to simulate how far the wind carries big and small cottonwood seeds away from the parent tree.

Part 1: Selecting the Content Representation

Is the Content Representation …	Yes	No
1. Scientifically accurate?		
2. Closely matched to the main learning goal?		
3. Presenting science ideas in ways that are comprehensible to students?		
4. Reinforcing or introducing student misconceptions?		
5. Addressing common student misconceptions?		
6. Distracting students from the main learning goal with too many details or new terms?		

Part 2: Engaging Students in Using the Content Representation

Is the Content Representation Used in a Way That Involves Students In …	Yes	No
1. Modifying or creating the content representation?		
2. Analyzing the meaning of the content representation?		
3. Critiquing the content representation?		

Part 3: Suggestions for Improvement

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Strategies to Create a Coherent Science Content Storyline
Analysis Guide D4:
Selecting and Using Content Representations

Main learning goal: Trait variations in plants or animals of the same kind affect which plants or animals survive and which don't.

Description of content representation: _____

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Part 1: Selecting the Content Representation

Is the Content Representation …	Yes	No
1. Scientifically accurate?		
2. Closely matched to the main learning goal?		
3. Presenting science ideas in ways that are comprehensible to students?		
4. Reinforcing or introducing student misconceptions?		
5. Addressing common student misconceptions?		
6. Distracting students from the main learning goal with too many details or new terms?		

Part 2: Engaging Students in Using the Content Representation

Is the Content Representation Used in a Way That Involves Students In …	Yes	No
1. Modifying or creating the content representation?		
2. Analyzing the meaning of the content representation?		
3. Critiquing the content representation?		

Part 3: Suggestions for Improvement

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Strategies to Create a Coherent Science Content Storyline
Analysis Guide D5:
Selecting and Using Content Representations

Main learning goal: Inherited (genetic) characteristics influence how likely an organism is to survive and reproduce.

Description of content representation: _____

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Part 1: Selecting the Content Representation

Is the Content Representation …	Yes	No
1. Scientifically accurate?		
2. Closely matched to the main learning goal?		
3. Presenting science ideas in ways that are comprehensible to students?		
4. Reinforcing or introducing student misconceptions?		
5. Addressing common student misconceptions?		
6. Distracting students from the main learning goal with too many details or new terms?		

Part 2: Engaging Students in Using the Content Representation

Is the Content Representation Used in a Way That Involves Students In …	Yes	No
1. Modifying or creating the content representation?		
2. Analyzing the meaning of the content representation?		
3. Critiquing the content representation?		

Part 3: Suggestions for Improvement

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