

Strategies to Create a Coherent Science Content Storyline

Analysis Guide D1: Selecting and Using Content Representations

Main learning goal: Plants are producers that make their own food by using energy from the Sun to transform matter from the air (carbon dioxide) and matter from the soil (water) into energy-supplying food.

Description of content representation: photosynthesis “equation” diagram

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

Strategies to Create a Coherent Science Content Storyline

Analysis Guide D2: Selecting and Using Content Representations

Main learning goal: Plants are producers that make their own food by using energy from the Sun to transform matter from the air (carbon dioxide) and matter from the soil (water) into energy-supplying food.

Description of content representation: mixing-bowl model of photosynthesis

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

Strategies to Create a Coherent Science Content Storyline

Analysis Guide D3: Selecting and Using Content Representations

Main learning goal: Animals consume the matter originally made by plants (in the form of food molecules). This matter moves from one organism to another in food chains, and each organism uses it to build body structures and to grow bigger.

Description of content representation: linking-cube model of growth showing how organisms in a food chain make and use food

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

Strategies to Create a Coherent Science Content Storyline

Analysis Guide D4: Selecting and Using Content Representations

Main learning goal: Plants are producers that make their own food by using energy from the Sun to transform matter from the air (carbon dioxide) and matter from the soil (water) into energy-supplying food.

Description of content representation: Students role-play plants making food.

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

Strategies to Create a Coherent Science Content Storyline

Analysis Guide D: Selecting and Using Content Representations

Main learning goal: _____

Description of content representation: _____

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
