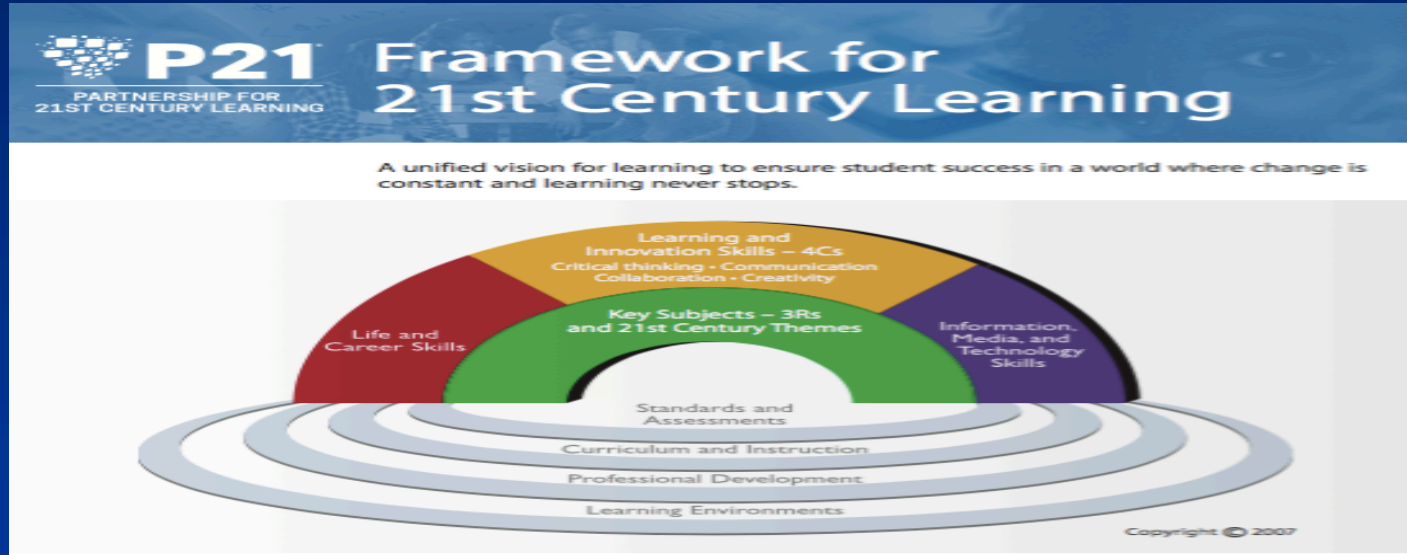


# 21<sup>st</sup> Century Assessment Across Levels and Disciplines



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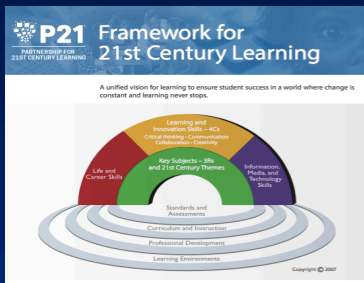
**Mobile Number: 09209532926**

**PATEF-UPDATE Mid-Year National Convention 2017**

**“Approaches in Teaching and Assessment for the 21<sup>st</sup> Century Learning”**

**May 18-20, 2017**

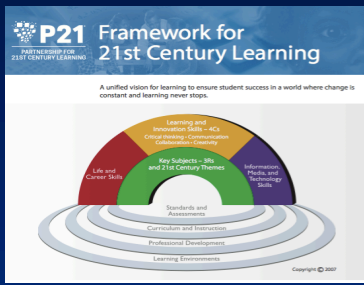
**Convention Hall, Pangasinan State University, Lingayen, Pangasinan**



# 21<sup>st</sup> Century Assessment Across Levels and Disciplines

## Outline

1. Pre-assessment
2. Role of Assessment in the 21<sup>st</sup> Century Learning
3. Purposes of Assessment in the 21<sup>st</sup> Century Learning
4. Principles Underlying Assessment in the 21<sup>st</sup> Century Learning
5. Approaches and Methods in Assessing 21<sup>st</sup> Century Learning
6. Framework in Assessing 21<sup>st</sup> Century Learning



# 21<sup>st</sup> Century Assessment Across Levels and Disciplines

## Outline

1. Pre-assessment
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# Role of Assessment in the 21<sup>st</sup> Century Skills



**P21**

PARTNERSHIP FOR  
21ST CENTURY LEARNING

## Framework for 21st Century Learning

A unified vision for learning to ensure student success in a world where change is constant and learning never stops.



# Role of Assessment in the 21<sup>st</sup> Century Skills

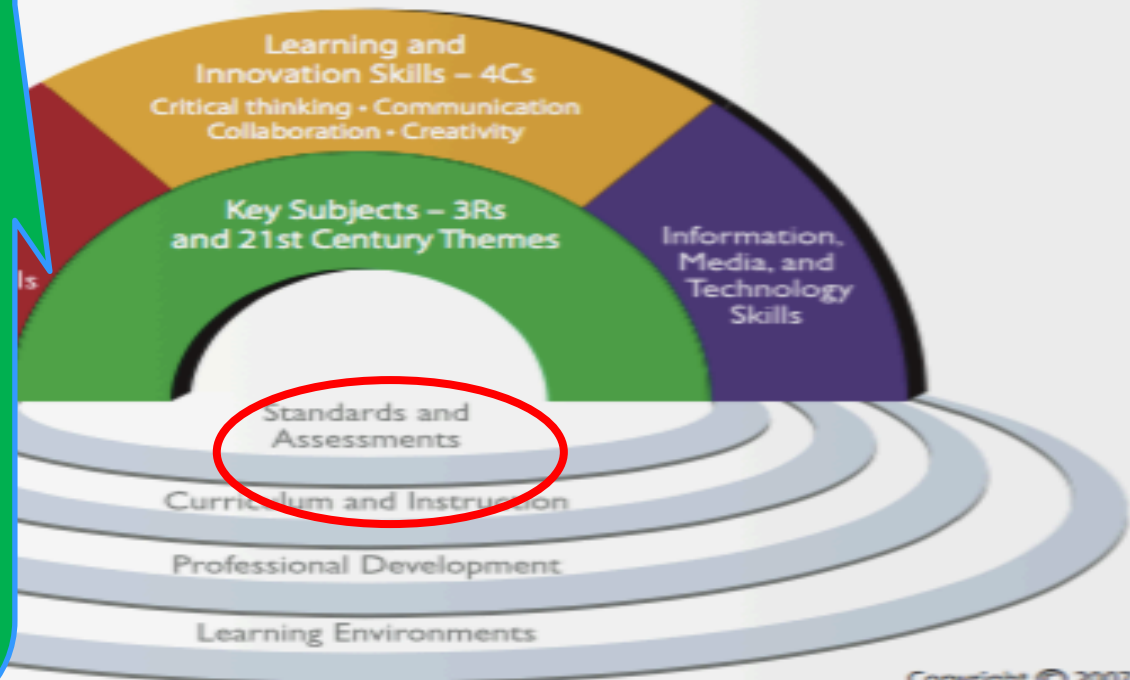


## Framework for 21st Century Learning

Key subjects include:

- English, reading or language arts,
- world languages,
- arts,
- mathematics,
- economics,
- science,
- geography,
- history,
- government and civics.

A unified vision for learning to ensure student success in a world where change is constant and learning never stops.



# Role of Assessment in the 21<sup>st</sup> Century Skills

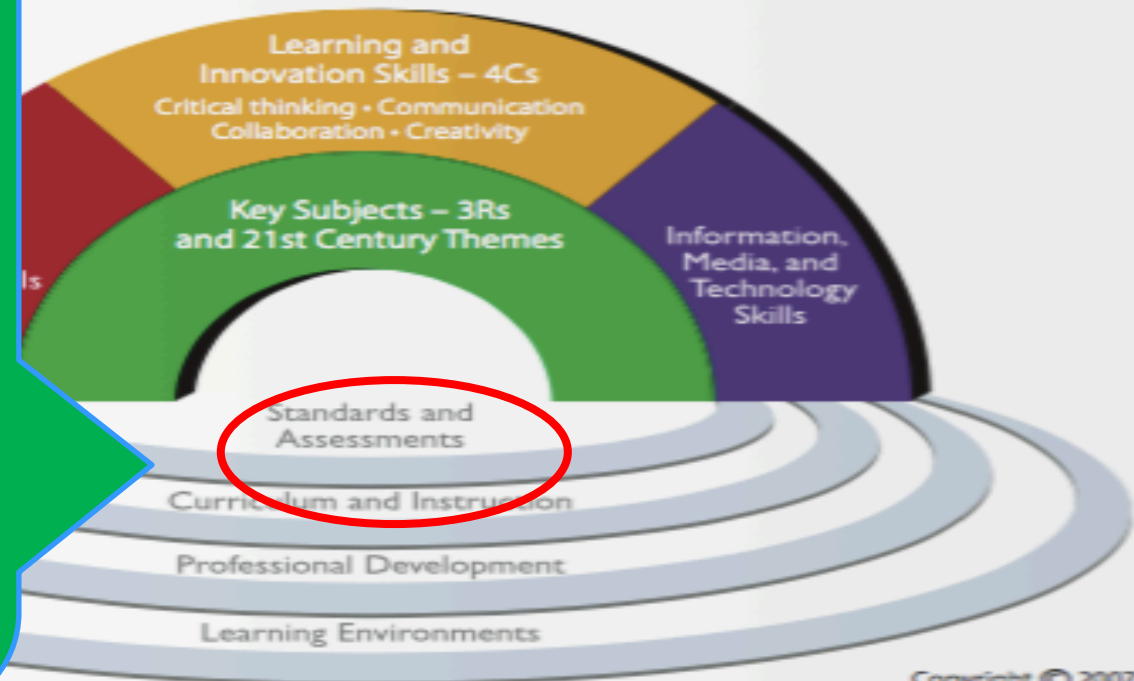


## Framework for 21st Century Learning

21<sup>st</sup> century themes are:

- Global Awareness
- Financial, Economic, Business and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy
- Environmental Literacy

A unified vision for learning to ensure student success in a world where change is constant and learning never stops.



# Role of Assessment in the 21<sup>st</sup> Century Skills

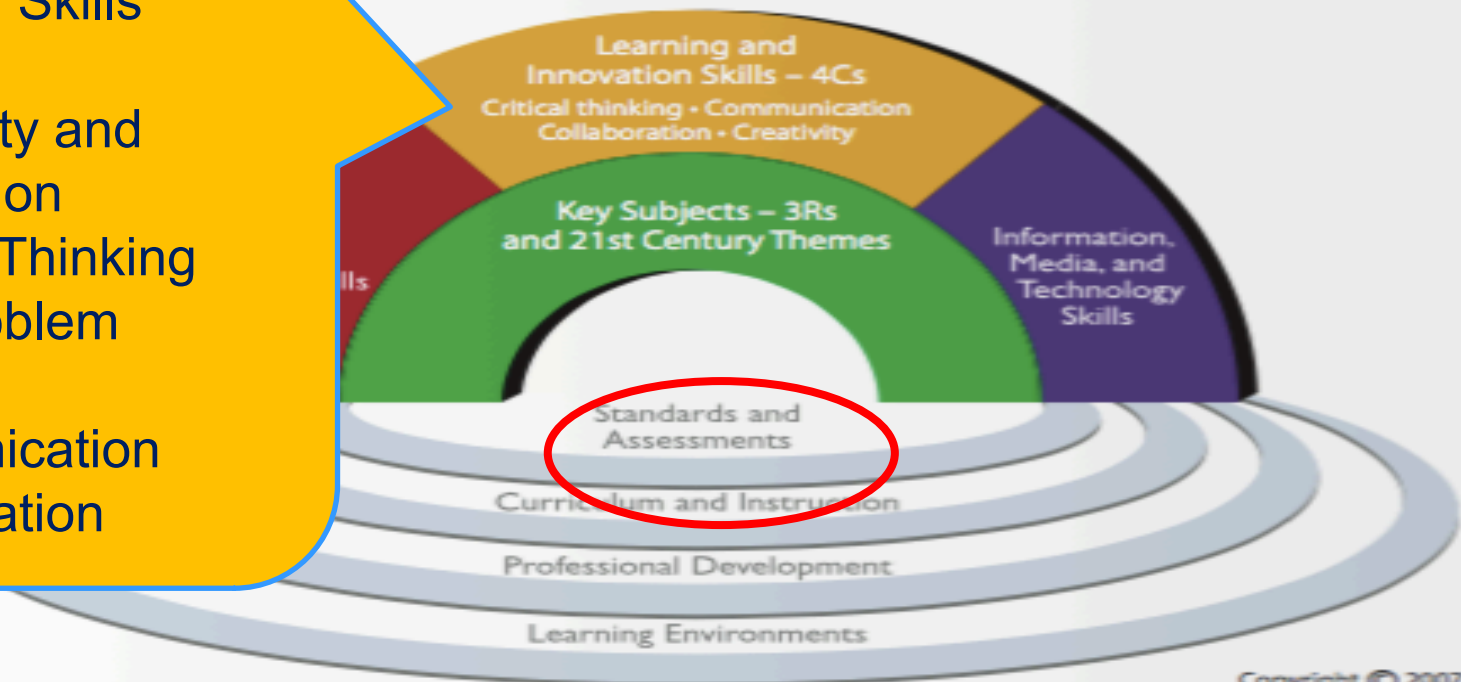


## Framework for 21st Century Learning

Learning and Innovation Skills include:

- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication
- Collaboration

A unified vision for learning to ensure student success in a world where change is constant and learning never stops.



# Role of Assessment in the 21<sup>st</sup> Century Skills

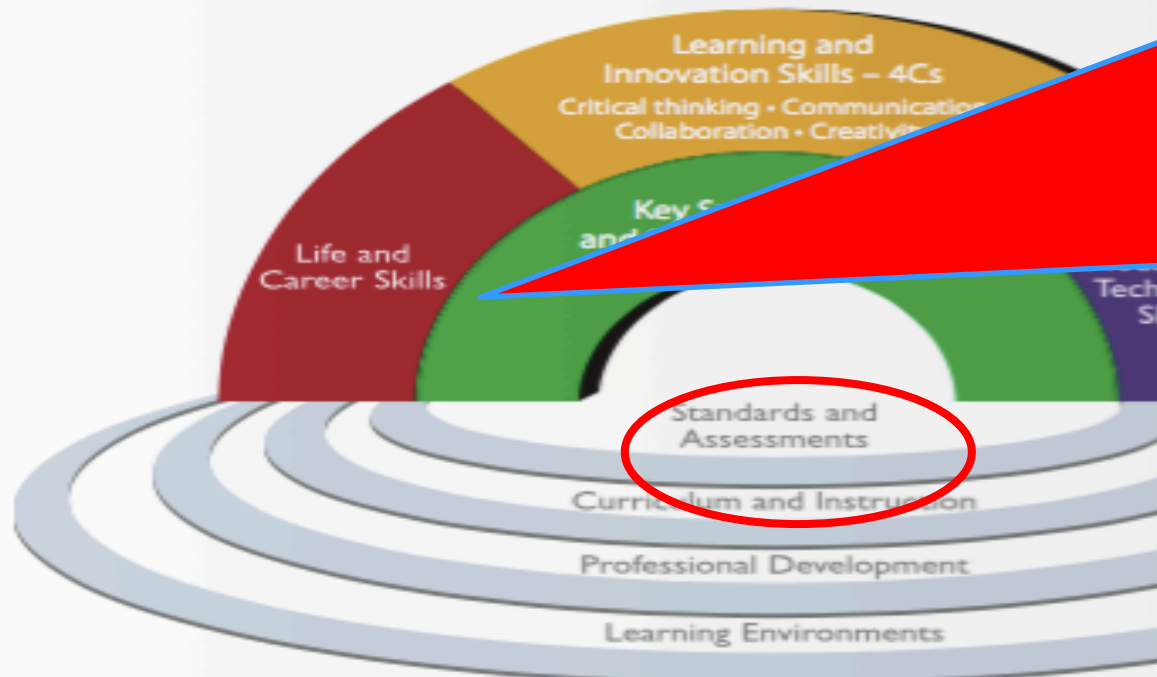


**P21**

PARTNERSHIP FOR  
21ST CENTURY LEARNING

## Framework for 21st Century Learning

A unified vision for learning to ensure student success in a world where change is constant and learning never stops.



Life and Career skills include:

- Flexibility and Adaptability
- Initiative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility

# Role of Assessment in the 21<sup>st</sup> Century Skills

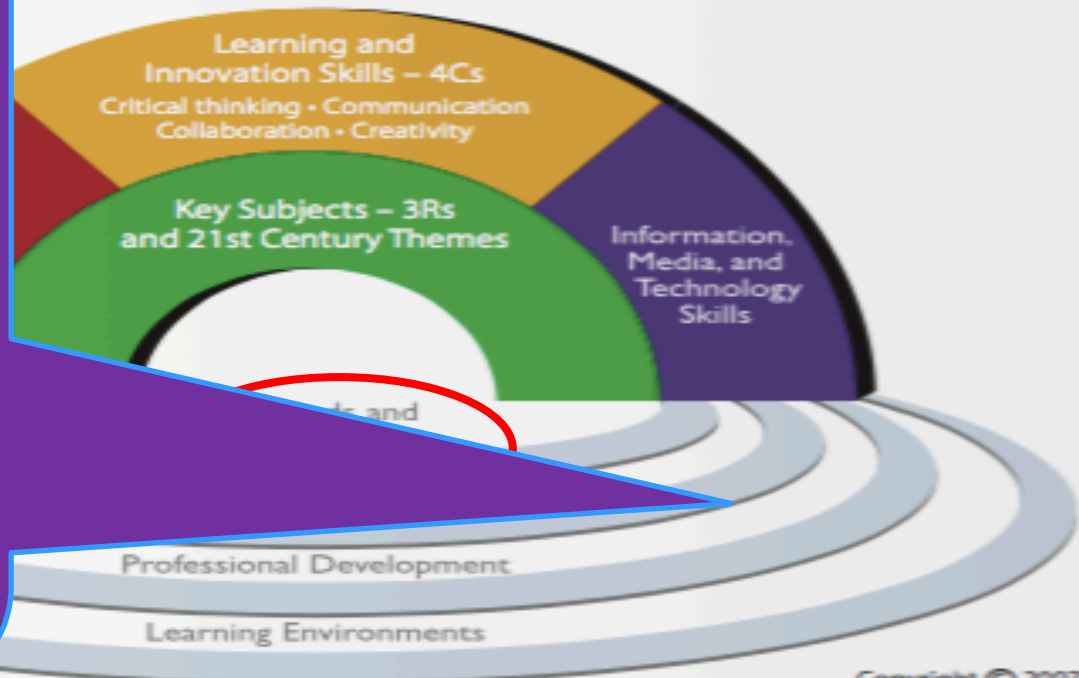


## Framework for 21st Century Learning

Information, Media and Technology Skills :

- Information Literacy
- Media Literacy
- ICT (Information, Communications and Technology) Literacy

and vision for learning to ensure student success in a world where change is and learning never stops.



# Role of Assessment in the 21<sup>st</sup> Century Skills



## Framework for 21st Century Learning

A unified vision for learning to ensure student success in a world where change is constant and learning never stops.



# Role of Assessment in the 21<sup>st</sup> Century Skills



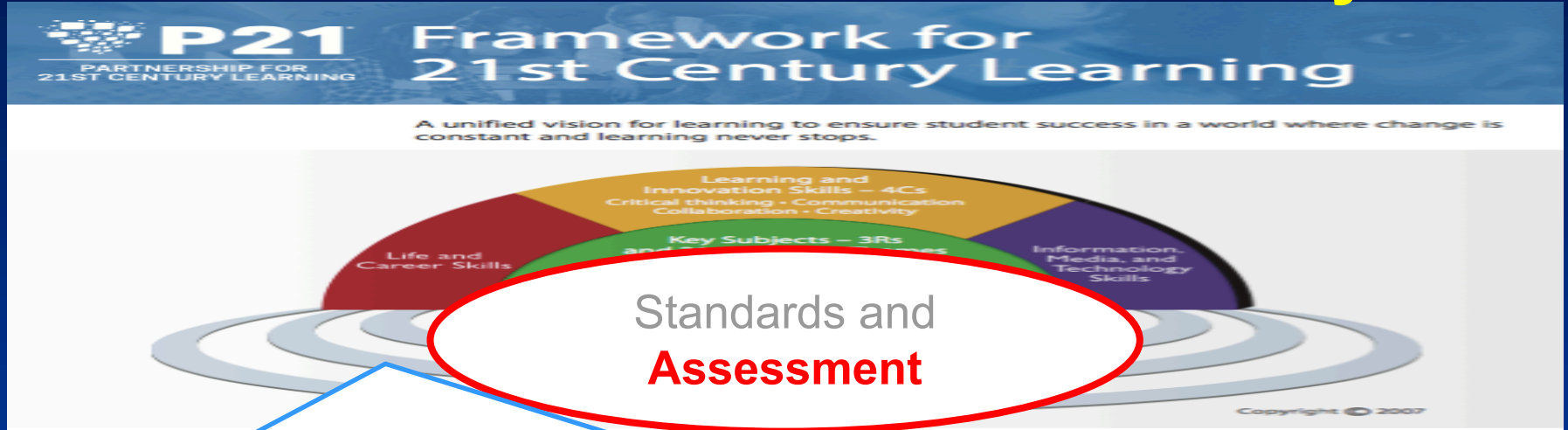
## Framework for 21st Century Learning

A unified vision for learning to ensure constant and learning never stops.

A support system for the 21<sup>st</sup> century skills/outcomes



# Role of Assessment in the 21<sup>st</sup> Century Skills



## Assessment of 21st Century Skills

- Supports a balance of assessments, including high-quality standardized testing along with effective formative and summative classroom assessments
- Emphasizes useful feedback on student performance that is embedded into everyday learning
- Requires a balance of technology-enhanced, formative and summative assessments that measure student mastery of 21st century skills
- Enables development of portfolios of student work that demonstrate mastery of 21st century skills to educators and prospective employers
- Enables a balanced portfolio of measures to assess the educational system's effectiveness in reaching high levels of student competency in 21st century skills

# Assessing 21<sup>st</sup> Century Learning

Parameters	20 <sup>th</sup> Century Assessment	21 <sup>st</sup> Century Assessment
Conditions	Standardized (same testing conditions and results may vary)	Non-standardized (different contexts/conditions but results may all be rewarded for creativity/problem solving)
Content	Secret (items/expectations are unknown to the learners)	Open (items/expectations are known to the learners as they are contributors)
Results	Individual	Combined Individual and Team

*Reference: Reeves, D. (2010 ). A Framework for Assessing 21<sup>st</sup> Century Skills. In 21<sup>st</sup> century skills, rethinking how students learn. USA: Solutions Tree Press,pp.305-325*

# Assessing 21<sup>st</sup> Century Learning

Parameters	21 <sup>st</sup> Century Assessment	Explanation
Conditions	Non-standardized	The purpose of the test is to reflect the real world so there is always variation and volatility. Students are rewarded for creativity and reactions to unexpected.
		Students are provided different testing conditions and are scored in terms of creativity, critical thinking and problem solving.

**Source:**  
Reeves, D. (2010 ). *A Framework for Assessing 21<sup>st</sup> Century Skills*. In 21<sup>st</sup> century skills, rethinking how students learn. USA: Solutions Tree Press,pp.305-325

# Assessing 21<sup>st</sup> Century Learning

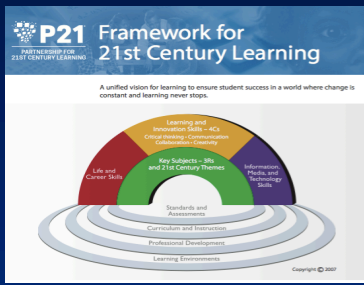
Parameters	21 <sup>st</sup> Century Assessment	Explanation
Content	Open	Items are open for student's comprehensive study and preparation.
		Teachers' items are pooled together.
		Students contribute to the creation of assessment.

## Source:

Reeves, D. (2010 ). *A Framework for Assessing 21<sup>st</sup> Century Skills*. In 21<sup>st</sup> century skills, rethinking how students learn. USA: Solutions Tree Press,pp.305-325

# Assessing 21<sup>st</sup> Century Learning

Parameter	21 <sup>st</sup> Century Assessment	Explanation
Results	Combined Individual and Team	Assessment aims for the development of leadership that stems from influence and service.
		Assessment rewards teamwork and collaboration not only individual effort.



# 21<sup>st</sup> Century Assessment Across Levels and Disciplines

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# Purposes & Types of Assessment in the 21<sup>st</sup> Century

Types	Purposes		
	Assessment <i>for</i> Learning	Assessment <i>as</i> Learning	Assessment <i>of</i> Learning
Placement (for grouping and identification of needs)	/	/	/
Formative (for monitoring and feedbacking)	/	/	X
Diagnostic (for detection of problems to inform intervention)	/	/	X
Summative (for certification and grading)	X	X	/

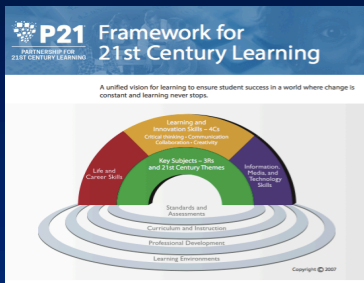
# Purposes of Assessment and Data Sources

Data Sources	Purposes		
	Assessment <i>for</i> Learning (Non-Graded)	Assessment <i>as</i> Learning (Non-Graded)	Assessment <i>of</i> Learning (Graded)
Self	/	/	/
Parent	/	X	/
Peer	/	X	/
Teacher	/	X	/

# Purposes of Assessment & 21<sup>st</sup> Century Learning Skills

21 <sup>st</sup> Century Learning & Innovation Skills*	Purposes		
	Assessment <i>for</i> Learning (Teacher & Peer Non-Graded Assessment)	Assessment <i>as</i> Learning (Self-Assessment Non-Graded)	Assessment <i>of</i> Learning (Self, Peer and Teacher Graded - Assessment)
Creativity and Innovation	/	/	/
Critical Thinking and Problem Solving	/	/	/
Communication	/	/	/
Collaboration	/	/	/

\*Reference: Partnership for 21<sup>st</sup> Century Learning (2016). Framework for 21<sup>st</sup> Century.. Retrieved from [www.p21.org](http://www.p21.org)



# 21<sup>st</sup> Century Assessment Across Levels and Disciplines

## Outline

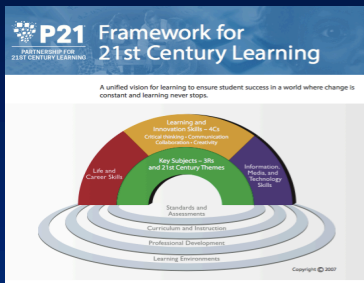
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## Which of the following principles of assessment for the 21<sup>st</sup> century learning were satisfied?

Principles	Was this addressed?
Clarity of Target	Assessment should have a clear purpose or trait to capture.
High Expectations	Assessment should set a standard aligned with instruction that will challenge the students to aim for higher achievement.
Expanded Opportunity	Assessment should allow continuous learning until one gets successful in attaining targets of increasing significance.
Constructive Alignment	Assessment approach should be aligned with instruction.
Multiple Measures	Assessment should be done using a balance of different approaches and methods.
Authenticity	Assessment should reflect real-life situations.
Communication	Assessment targets, standards, and results should be communicated to learners.
Fairness	Assessment should be done objectively without biases and prejudices.
Reliability	Assessment data should show consistent results.

# Principles in Assessing 21<sup>st</sup> Century Learning

Principles	Explanation
Clarity of Target	Assessment should have a clear purpose or trait to capture.
High Expectations	Assessment should set a standard aligned with instruction that will challenge the students to aim for higher achievement.
Expanded Opportunity	Assessment should allow continuous learning until one gets successful in attaining targets of increasing significance.
Constructive Alignment	Assessment approach should be aligned with instruction.
Multiple Measures	Assessment should be done using a balance of different approaches and methods.
Authenticity	Assessment should reflect real-life situations.
Communication	Assessment targets, standards, and results should be communicated to learners.
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Reliability	Assessment data should show consistent results.



# 21<sup>st</sup> Century Assessment Across Levels and Disciplines

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# Approaches and Methods in Assessing Learning

Methods	Approaches		
	Traditional	Performance-based	Portfolio
Selected Response Test	/	X	/
Supply Test (Identification, Completion)	/	X	/
Constructed Response Test (Essay, Compositions)	X	/	/
Demonstration-based Tasks	X	/	/

# ***To what extent are the following approaches appropriate to assess the given 21<sup>st</sup> century learning and innovation skills?***

<b>21<sup>st</sup> Century Learning &amp; Innovation Skills*</b>	<b>Approaches</b>		
	<b>Traditional</b>	<b>Performance-based</b>	<b>Portfolio</b>
<b>Creativity and Innovation</b>	low	high	very high
<b>Critical Thinking and Problem Solving</b>	low	high	very high
<b>Communication</b>	low	Very high	very high
<b>Collaboration</b>	low	Very high	very high

\*Reference: Partnership for 21<sup>st</sup> Century Learning (2016). Framework for 21<sup>st</sup> Century.. Retrieved from [www.p21.org](http://www.p21.org)

# Assessing 21<sup>st</sup> Century Learning

Parameter	21 <sup>st</sup> Century Assessment	Traditional Assessment (20 <sup>th</sup> Century)	Improved Traditional Assessment (21 <sup>st</sup> Century)
Conditions	Non-standardized	Multiple Choice that has fixed options.	Multiple choice with an <b>option</b> <b>student's constructed</b> as better than any of the choices provided.
Content	Open	Multiple Choice with unknown objective to the students	Multiple choice where <b>objective is known</b> for the students to know what item they could contribute
Results	Combined Individual and Team	Multiple Choice item scored only by the peers/teachers	Multiple choice item scored based on <b>self-rating</b> and rating given by others.

Source:  
Reeves, D. (2010 ). *A Framework for Assessing 21<sup>st</sup> Century Skills*. In 21<sup>st</sup> century skills, rethinking how students learn. USA: Solutions Tree Press, pp.305-325

Stop!



Test yourself on your  
knowledge of assessment.  
Answer this individually first.  
Then group and discuss your  
answers. Then as a group,  
decide on the score  
that one deserves.



Are you ready?



**Objective:** Use assessment results in making decisions about teaching and learning.

**Situation:** After teaching the day's lesson, you gave your students a test. The result shows that almost all of the students got a low score. Which of the following should you do?  
(Maximum Score: 3 Points)

A.	Give a parallel test.
B.	Review its pre-requisite lesson.
C.	Teach the lesson again in the same way.
D.	Count the frequency of errors to know what to explain again.
E.	1) Offer an answer that you think is better than any of the given options. 2) Give your own action given the results of assessment.

**Objective:** Use assessment results in making decisions about teaching and learning.

**Situation:** After teaching the day's lesson, you gave your students a test. The result shows that almost all of the students got a low score. Which of the following should you do?  
(Maximum Score: 3 Points)

A.	Give a parallel test.	?
B.	Review its pre-requisite lesson.	?
C.	Teach the lesson again in the same way.	?
D.	Count the frequency of errors to know what to explain again.	?
E.	Offer an answer that you think is better than any of the given options/ Give your own action given the results of assessment.	?

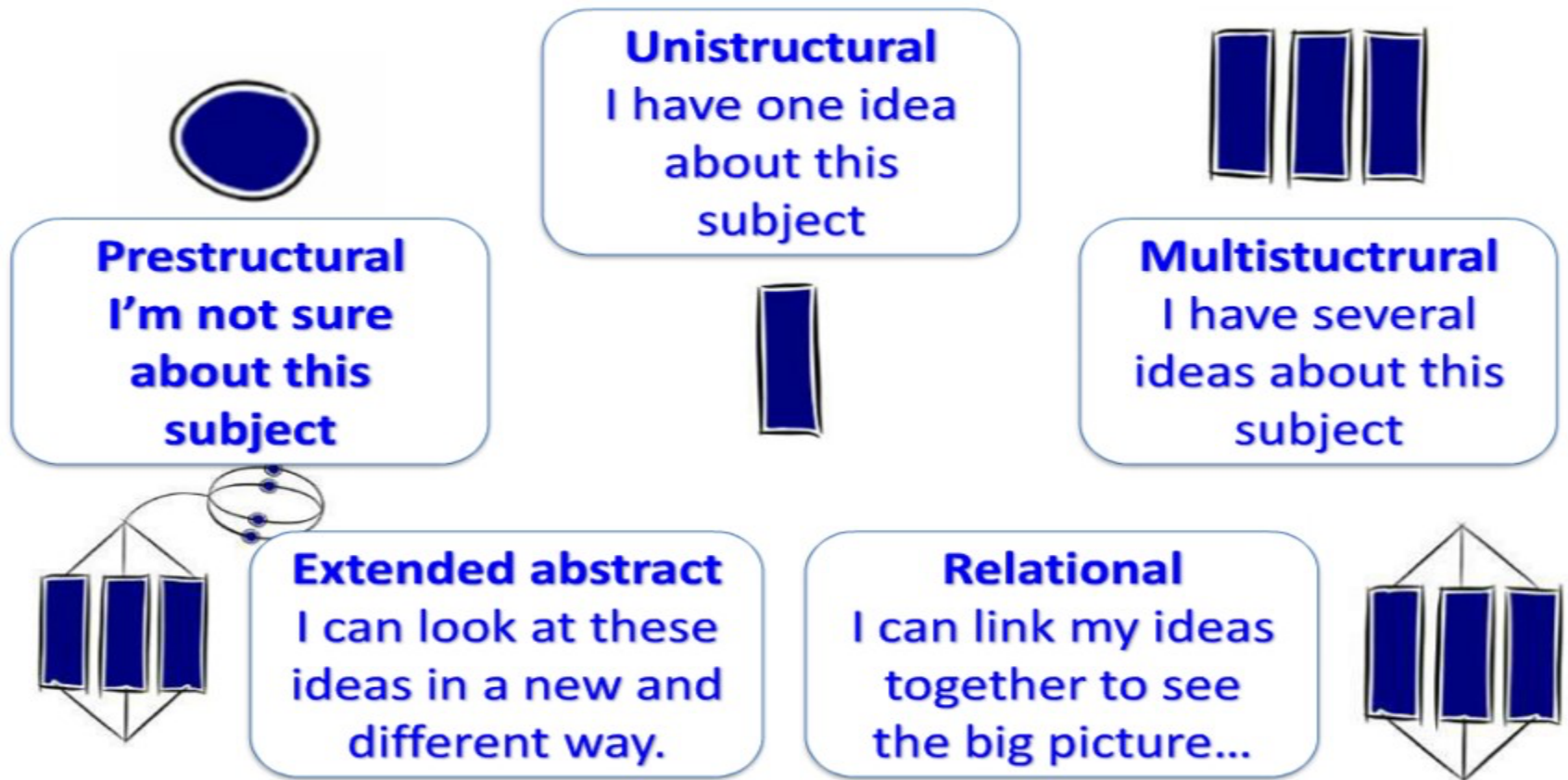
# Improving Construction of Multiple Choice Items and Scoring of Essays Using SOLO

- SOLO stands for Structure of Observed Learning Outcomes
- It was developed by Biggs and Collis in 1982 as a framework for understanding. In this framework, each level embraces the previous level but adds something more.







# Improving Construction of Multiple Choice Items Using SOLO

## 5 typical ways to answer a question



# SOLO and the Level of Learning

	<i>Level of Learning</i>	<b>SOLO Taxonomy</b>	<b>What it means?</b>
<b>Excellence</b>	<b>Deep</b>	Extended Abstract 	<i>Can extend and apply ideas.</i> Extended thinking.
<b>Secure</b>		Relational 	<i>Can link and relate ideas.</i> Strategies for thinking & reasoning.
<b>Developing</b>	<b>Surface</b>	Multistructural 	<i>Many ideas.</i> Basic skills & concepts.
<b>Foundation</b>		Unistructural 	<i>Single idea.</i> Recall & reproduction.

Practice analysing  
the quality of responses to items.  
Code the responses  
using SOLO Framework.



# How will you code the following responses using the SOLO Framework?


Use **0** if the response indicates lack of understanding or no correct idea could be drawn from it.

Use **1** if the response indicates an initial understanding as there is one correct idea that could be drawn from it.

Use **2** if the response indicates understanding of multiple but unrelated information within the subject.

Use **3** if the response indicates understanding of multiple and related facts within the subject.

Use **4** if the response indicates understanding of multiple and related information within the subject and connects them to those ideas learned outside the subject.



Discuss your answer with your  
groupmates and then decide  
on the score each  
response deserves.



**Objective:** Use assessment results in making decisions about teaching and learning.

**Situation:** After teaching the day's lesson, you gave your students a test. The result shows that almost all of the students got a low score. Which of the following should you do?  
(Maximum Score: 3 Points)

A.	Give a parallel test.	?
B.	Review its pre-requisite lesson.	?
C.	Teach the lesson again in the same way.	?
D.	Count the frequency of errors to know what to explain again.	?
E.	Offer an answer that you think is better than any of the given options/ Give your own action given the results of assessment.	?

**Objective:** Use assessment results in making decisions about teaching and learning.

**Situation:** After teaching the day's lesson, you gave your students a test. The result shows that almost all of the students got a low score. Which of the following should you do?  
(Maximum Score: 3 Points)

A.	Give a parallel test.	1
B.	Review its pre-requisite lesson.	1
C.	Teach the lesson again in the same way.	1
D.	Count the frequency of errors to know what to explain again.	2
E.	Determine the items students found difficult that would require further explanation.	3

# Assess the Assessment

*Is the item:*

Parameters	21 <sup>st</sup> Century Assessment
Conditions	<u>non-standardized</u> as it allows different contexts/conditions and results to be rewarded for creativity/critical thinking ?
Content	<u>open</u> as the expectations are known to the learners as they are item contributors?
Results	<u>scored</u> based on the combination of one's score and team's score?

Let's see this applied  
in an elementary level.



## Objective: Add 1-2- digit numbers

**Situation:** During your morning break, you bought a pancit canton worth Php15 and a glass of coconut juice worth Php5. How much did you spend for your snacks?

(Maximum Score: 3 Points)

A.	<b>Php 10</b>	?
B.	<b>Php 15</b>	?
C.	<b>Php 20</b>	?
D.	<b>I can construct a another or much better problem for the objective given.</b>	?

Objective: Add 1-2- digit numbers

**Situation:** During your morning break, you bought a pancit canton worth Php15 and a glass of coconut juice worth Php5. How much did you spend for your snacks?

**(Maximum Score: 3 Points)**

A.	Php 10	?
B.	Php 15	?
C.	Php 20	?
D,	I bought bibingka worth Php10 and ginger tea worth Php5. I spent Php15 in all.	?

Objective: Add 1-2- digit numbers

**Situation:** During your morning break, you bought a pancit canton worth Php15 and a glass of coconut juice worth Php5. How much did you spend for your snacks?

**(Maximum Score: 3 Points)**

A.	Php 10	2
B.	Php 15	1
C.	Php 20	3
D,	I bought bibingka worth Php10 and ginger tea worth Php5. I spent Php15 in all.	3

# Assess the Assessment

*Is the item:*

Parameters	21 <sup>st</sup> Century Assessment
Conditions	<u>non-standardized</u> as it allows different contexts/conditions and results to be rewarded for creativity/critical thinking ?
Content	<u>open</u> as the expectations are known to the learners as they are item contributors?
Results	<u>scored</u> based on the combination of one's score and team's score?

# Tell if the test format can assess appropriately the given learning and innovation skill?

21 <sup>st</sup> Century Learning & Innovation Skills*	Traditional Test Formats			
	Multiple Choice	Alternative Response	Matching Type	Supply Test
Creativity & Innovation	?	?	?	?
Critical Thinking & Problem Solving	?	?	?	?
Communication	?	?	?	?
Collaboration	?	?	?	?

\*Source: Partnership for 21<sup>st</sup> Century Learning (2016). Framework for 21<sup>st</sup> Century.. Retrieved from [www.p21.org](http://www.p21.org)

# Tell if the test format can assess appropriately the given learning and innovation skill?

21 <sup>st</sup> Century Learning & Innovation Skills*	Traditional Test Formats			
	Multiple Choice	Alternative Response	Matching Type	Supply Test
Creativity & Innovation	X	X	X	X
Critical Thinking & Problem Solving	/	/	/	/
Communication	X	X	X	X
Collaboration	X	X	X	X

\*Source: Partnership for 21<sup>st</sup> Century Learning (2016). Framework for 21<sup>st</sup> Century.. Retrieved from [www.p21.org](http://www.p21.org)

# Assessing 21<sup>st</sup> Century Learning

Parameter	21 <sup>st</sup> Century Assessment	Performance Assessment (20 <sup>th</sup> Century)	Improved Performance Assessment (21 <sup>st</sup> Century)
Conditions	Non-standardized	Constructed Response Test with <b>one set of questions</b> that all students have to answer with reference to the same scoring guide	Constructed Response Test with <b>a set of similar questions</b> that students could choose from
Content	Open	Constructed Response Test that students <b>see only during actual test</b> which they answer with unknown scoring guide.	Constructed Response Test with a set of similar questions including those added by the students <b>known to them prior to actual testing</b> and with known scoring guide
Results	Combined Individual and Team	Constructed Response Test where student's <b>individual score</b> came only from the <b>teacher</b> .	Constructed Response Test where student's <b>score</b> came from the <b>student himself/herself</b> and the

# 21<sup>st</sup> Century Skills & Approaches in Assessing Learning

21 <sup>st</sup> Century Learning & Innovation Skills*	Methods				
	Selected Response Test	Supply Test	Constructed Response Test	Demonstration-based Task	Product-based Task
Creativity & Innovation	low	low	high	very high	very high
Critical Thinking & Problem Solving	low	low	high	very high	very high
Communication	low	low	high	very high	very high
Collaboration	low	low	low	very high	very high

# 21<sup>st</sup> Century Skills & Performance Methods

21 <sup>st</sup> Century Learning & Innovation Skills*	Performance-based Methods			
	Constructed Response/ Written-based	Interview-based	Observation-based	Product-based
Creativity & Innovation	/	<b>X</b>	/	/
Critical Thinking & Problem Solving	/	/	/	/
Communication	/	/	/	/
Collaboration	<b>X</b>	<b>X</b>	/	/

\*Source: Partnership for 21<sup>st</sup> Century Learning (2016). Framework for 21<sup>st</sup> Century.. Retrieved from [www.p21.org](http://www.p21.org)

# Assessing 21<sup>st</sup> Century Learning

Parameter	21 <sup>st</sup> Century Assessment	Portfolio Assessment (20 <sup>th</sup> Century)	Improved Portfolio Assessment (21 <sup>st</sup> Century)
Conditions	Non-standardized	Portfolio Assessment where all students have to provide the <b>same set of evidences</b> to learning.	Portfolio Assessment where students could have <b>different sets of evidences</b> of learning.
Content	Open	Portfolio Assessment where all students are rated with <b>unknown scoring rubric</b> .	Portfolio Assessment where all students are rated with <b>known scoring rubric</b> flexible enough to reward differences and creativity.
Results	Combined Individual and Team	Portfolio Assessment where student's rating comes only from the <b>teacher</b> .	Portfolio Assessment where student's rating comes from the <b>teacher, peer and from oneself</b> .

# 21<sup>st</sup> Century Skills & Portfolio Assessment

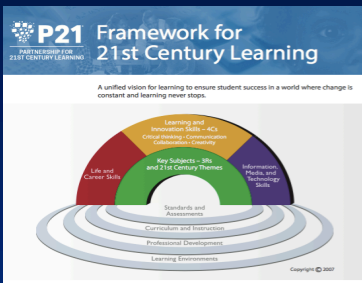
21 <sup>st</sup> Century Learning & Innovation Skills*	Portfolio-based Methods		
	Working	Documentary	Show
Creativity & Innovation	<b>X</b>	/	/
Critical Thinking & Problem Solving	/	/	/
Communication	/	/	/
Collaboration	/	/	/

\*Source: Partnership for 21<sup>st</sup> Century Learning (2016). Framework for 21<sup>st</sup> Century.. Retrieved from [www.p21.org](http://www.p21.org)

# 21<sup>st</sup> Century Skills & Assessment Tools

21 <sup>st</sup> Century Learning & Innovation Skills*	Assessment Tools		
	Tests with Answer Key	Tasks with Checklist/ Rating Scale	Tasks with Rubrics
Creativity & Innovation	/	/	/
Critical Thinking & Problem Solving	/	/	/
Communication	/	/	/
Collaboration	/	/	/

\*Source: Partnership for 21<sup>st</sup> Century Learning (2016). Framework for 21<sup>st</sup> Century.. Retrieved from [www.p21.org](http://www.p21.org)



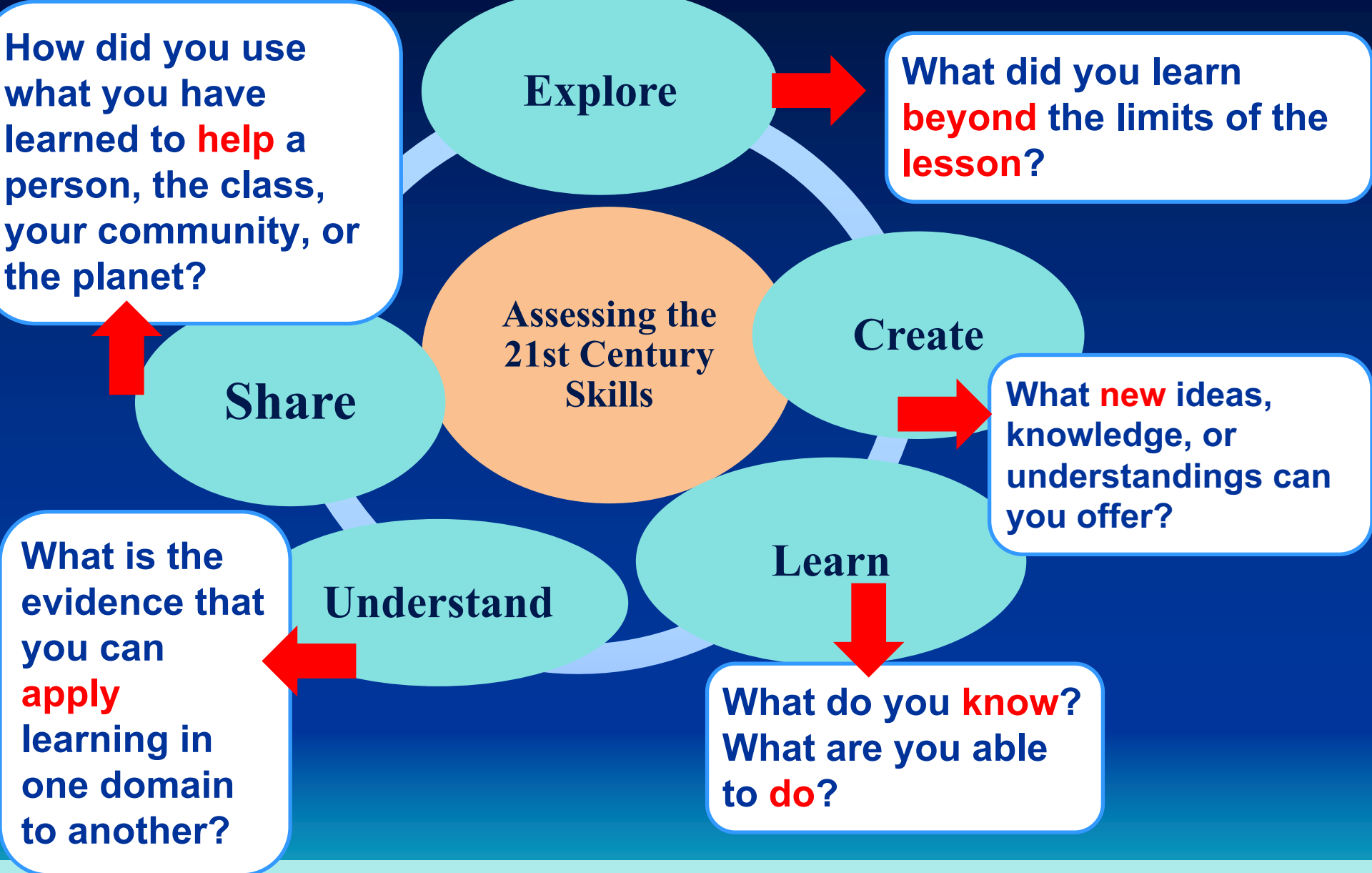
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3. Purposes of Assessment in the 21<sup>st</sup> Century Learning
4. Principles Underlying Assessment in the 21<sup>st</sup> Century Learning
5. Approaches and Methods in Assessing 21<sup>st</sup> Century Learning
6. Framework in Assessing 21<sup>st</sup> Century Learning



**Framework of Assessing 21<sup>st</sup> Century Skills:  
A Constellation of Learning**  
(Douglas Reeves, 2010)



**Framework of Assessing 21<sup>st</sup> Century Skills:**  
**A Constellation of Learning**  
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# Thank you!

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