

# Welcome! Please join a table.

Groups of 4 (or 3).

Try to sit with others you haven't sat with before.

Please ***complete the self-assessment exercise*** on the table. This is for you only (you do not need to share).

# Introductions

Please quickly introduce yourself to others at your table (name, institution, role).

# Task: IF-AT ("scratch card") Review Quiz

## Warm-up

*IF-AT = Immediate feedback assessment technique*

**Instructions:** Work as a team to complete the short multiple choice review quiz

Typical scoring per question:

- 4 pts for one scratch to reveal the ★
- 2 pts for two scratches
- 1 pt for three scratches
- 0 pts for four scratches

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT®)					
Name	Team #3			Test #	2
Subject				Total	
SCRATCH OFF COVERING TO EXPOSE ANSWER					
	A	B	C	D	Score
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4
2.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
3.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
4.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

# By the end of this session, you should be able to...

- **Describe** the key roles of assessment and feedback in learning
- **List** a range of different types of assessments and typical uses
- **Define** formative and summative feedback, and summarize uses of each
- **Select** an appropriate assessment for a course or learning activity, and **evaluate** its effectiveness
- **Apply** principles of constructive alignment in selecting and creating assessments
- **Recognize** that learning results from what a student *does*, and **value** assessment as a key element in the learning process

# Assessment Fundamentals

# What is assessment?

The wide variety of ***methods or tools*** that educators use to ***evaluate, measure, and document*** the academic ***readiness, learning progress, skill acquisition, or educational needs*** of students.

From: Glossary of Education Reform, <https://www.edglossary.org/assessment/>

# Task: What are key reasons for using assessment in a course?

1. Take 1 minutes to identify reasons individually, and write your ideas down
2. Take 5 minutes to share at your table
  - Write your ideas down
  - Get input from everyone
  - Be prepared to share with the full group

# Debrief: Reasons for Assessment

- Feedback to students on performance and progress
- Feedback to instructor on student performance and progress
- Feedback to instructor on their teaching
- Student learning tool
- Student motivation / engagement tool
- Student accountability tool
- Program evaluation tool
- Others?

Process query: Why did we do this activity rather than presenting this list to begin with?



# Formative vs Summative Feedback

## ***Formative***

- "Assessment ***for*** learning"
- Feedback for student and teacher on learning progress
- May or may not include a score or grade
- Generally low stakes (e.g. quizzes)

## ***Summative***

- "Assessment ***of*** learning"
- Evaluate learning at end of a unit or course
- Compare against a benchmark
- Often high stakes (e.g. final exam)

# Was the review quiz formative or summative?

**IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT®)**  
Name Team #3 Test # 2  
Subject \_\_\_\_\_ Total \_\_\_\_\_

**SCRATCH OFF COVERING TO EXPOSE ANSWER**

	A	B	C	D	Score
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4
2.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
3.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
4.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Process query: Why ask you this question?

# What Research says about Feedback and Learning

- Goal-directed practice coupled with targeted feedback **enhances the quality of students' learning** (Ambrose, 2010)
- While time on task is necessary for learning, it is not sufficient... **feedback is critical** (Bransford, 2000)
- Feedback helps learning and **ranks near the top in terms of effectiveness** of educational practices (Hattie, 2015)
- **Timing of feedback** should depend on task (immediate for easy items; some delay for difficult items) (Kulik & Kulik, 1988)

# Implementing Assessments

# Some Types of Assessments

## ***Conventional***

- Multiple choice tests
- Written tests
- Homework problems
- Lab worksheets
- Reports / papers / essays
- Oral presentations
- More...

## ***Emergent***

- Personal response systems (clickers and voting systems)
- Peer evaluation
- Peer assessment
- Two-stage testing (individual then team written tests)
- Self-guided assessment
- More...

# Task: What properties should be present in a well-functioning assessment?

(i.e. what would we want an assessment to achieve in order to continue using that assessment tool)

1. Individually brainstorm and jot down your ideas
2. Have at least one person at your table **access the online form** to the right
3. Add ideas to the online form that your table agrees on



[bit.ly/ceea-iet5](https://bit.ly/ceea-iet5)

TIME LEFT (6 mins)

# Some Properties of a well-functioning assessment

- Results are ***valid***
  - It measures what it is supposed to
  - i.e. it is aligned with the intended learning outcome
- Results are ***reliable***
  - It is consistent and dependable
- It is ***practical***
  - Cost, effort, and timeframe involved reasonable
  - It easily gives quality feedback to teachers and students
- It is ***authentic***
  - It aligns with the target skill
  - e.g. should we assess teamwork using an individual exam?

What and how students learn depends to a major extent on how they think they will be assessed.

Assessment practices must send the right signals to students about what they should be learning and how they should be learning it.

*- Biggs and Tang, 2011*



# Recall Your Experiences as a Learner Yesterday

## A Sample Learning Activity

In a moment, a list of words / phrases will appear.

**Your task:** count the number of vowels in the list. (There will be a test!)



Source: Activity adapted from Sandra McGuire, Louisiana State University

- Unicycle
- Dice
- Tripod
- Four-leaf clover
- Hand
- Insect
- Seven-up
- Stop sign
- Cat Lives
- Provinces
- November
- Dozen eggs
- Unlucky Friday
- Valentine's Day

TIME LEFT

# Some Student Considerations in Assessment

- **Purpose:** how will you communicate the purpose of the assessment and its fit in the course to students?
- **Resources:** have you considered the instructions, materials, and time students need to prepare for and complete the assessment task?
- **Evaluation:** have you considered and communicated how the assessment will be evaluated (i.e. make judgements based on student work)? What the criteria are?
- **Feedback:** have you considered how and when students will get feedback? How they will they use it?

# Assessment Details

# Pro-tip: Record and Summarize Grades by Exam Question (also applies to rubric criteria)

	Question number						Total
	Q1	Q2	Q3	Q4	Q5	Q6	
Student 1	68%	40%	98%	80%	62%	40%	65%
Student 2	72%	42%	96%	73%	70%	33%	64%
Student 3	80%	34%	98%	88%	70%	34%	67%
<b>Average</b>	<b>70%</b>	<b>65%</b>	<b>98%</b>	<b>85%</b>	<b>63%</b>	<b>45%</b>	<b>71%</b>
<b>Min.</b>	12%	30%	95%	0%	54%	0%	<b>33%</b>
<b>Max.</b>	98%	100%	100%	100%	79%	58%	<b>89%</b>
<b>Std. Dev.</b>	24%	21%	2%	21%	4%	12%	<b>19%</b>
<b>Count</b>	92	92	92	91	92	92	<b>92</b>
<b>Correlation</b>	0.44	-0.33	0.02	0.69	0.03	0.34	

- Performance by topic (good for accreditation)
- Spread in student performance by topic
- Possible grade recording errors
- Questions that are too easy / difficult
- Questions that do not distinguish strong from weak students
- Possible faulty questions (weak students score higher)

# Task: The Self-Assessment Activity Revisited

Consider the self-assessment rubric from the start

1. Was this for summative feedback or formative feedback?
2. What benefits does using rubrics offer in assessment? (self-assessment or otherwise)

	Level of Mastery			
	Exemplary	Competent	Developing	Beginning
<b>Contribution to workshops</b> In IET 1 to IET 4...	I feel that I contributed equitably to all group discussions and workshop activities, and made consistent efforts to ensure others also contributed equitably (e.g. ensured everyone had equal opportunity to speak and no one dominated).	I feel that I contributed equitably to all group discussions and workshop activities, and allowed others the opportunity to also contribute equitably.	I feel that I contributed to almost all group discussions and workshop activities, but occasionally over- or under-contributed.	I feel that I contributed only to some group discussions or workshop activities, or occasionally prevented others from being able to contribute equitably (e.g. dominated discussion, interrupted, or distracted others).
<b>Learning progress</b> For IET 1 to IET 4...	I feel that I can easily apply the concepts from the workshops towards my own teaching, and teach others how to do the same.	I feel that I can apply the concepts from the workshops towards my own teaching, with a little bit of time and thought.	I feel that I can apply most of the concepts from the workshops to my own teaching, with a little bit of help from others.	I feel that I do not understand many of the concepts from the workshops and cannot properly apply them.
<b>Application</b> Between IET sessions...	I have devoted time for deliberate reflection on the workshop topics, and have actively tried to apply some topics to my courses or teaching.	I have spent some time thinking about the workshop topics and occasionally pondered how they might integrate into my teaching.	I have casually considered some of the topics from the workshops.	I have not considered the topics from the workshops.
<b>Teaching views</b> As a result of the IET sessions...	I have been actively reflecting on my own views of teaching, and have considered how new ideas I have been exposed to have supported/challenged my views.	I have been considering my own views of teaching, and have tried to incorporate new ideas I have been exposed to.	I have occasionally been thinking about my views of teaching.	I have not considered my views of teaching since the start of the workshop.

# Some benefits of using rubrics in assessment

- Improve reliability and validity (especially for assessing procedural knowledge)
- Communicate expectations to students (and others)
- Improve evaluation workflow and recording
- Share feedback with students
- More...

	Level of Mastery			
	Exemplary	Competent	Developing	Beginning
<b>Contribution to workshops</b> In IET 1 to IET 4...	I feel that I contributed equitably to all group discussions and workshop activities, and made consistent efforts to ensure others also contributed equitably (e.g. ensured everyone had equal opportunity to speak and no one dominated).	I feel that I contributed equitably to all group discussions and workshop activities, and allowed others the opportunity to also contribute equitably.	I feel that I contributed to almost all group discussions and workshop activities, but occasionally over- or under-contributed.	I feel that I contributed only to some group discussions or workshop activities, or occasionally prevented others from being able to contribute equitably (e.g. dominated discussion, interrupted, or distracted others).
<b>Learning progress</b> For IET 1 to IET 4...	I feel that I can easily apply the concepts from the workshops towards my own teaching, and teach others how to do the same.	I feel that I can apply the concepts from the workshops towards my own teaching, with a little bit of time and thought.	I feel that I can apply most of the concepts from the workshops to my own teaching, with a little bit of help from others.	I feel that I do not understand many of the concepts from the workshops and cannot properly apply them.
<b>Application</b> Between IET sessions...	I have devoted time for deliberate reflection on the workshop topics, and have actively tried to apply some topics to my courses or teaching.	I have spent some time thinking about the workshop topics and occasionally pondered how they might integrate into my teaching.	I have casually considered some of the topics from the workshops.	I have not considered the topics from the workshops.
<b>Teaching views</b> As a result of the IET sessions...	I have been actively reflecting on my own views of teaching, and have considered how new ideas I have been exposed to have supported/challenged my views.	I have been considering my own views of teaching, and have tried to incorporate new ideas I have been exposed to.	I have occasionally been thinking about my views of teaching.	I have not considered my views of teaching since the start of the workshop.

# Some Considerations in Assessment Planning

## Why

- Why is the assessment being done?
- Is this for summative or formative feedback?

## What

- What is the learning outcome and related course activity you are trying to assess?
- What resources do you, students, and evaluators need to complete the assessment?

## How

- How will the assessment be done? (i.e. which assessment tool/approach will be used?)
- How will the assessment be evaluated? (e.g. rubric-graded? peer evaluated?)

## Who

- Who will conduct/oversee/support/evaluate the assessment task?
- Who will use the results? (e.g. student? teacher? accreditation?)

## When

- When will the assessment task be completed? Evaluated?
- When will feedback be returned to students?

# Task: Application to your teaching

## **Part 1: Individual Worktime (10 minutes)**

- Select one learning outcome you drafted in Session 2
- Identify an appropriate assessment tool for that outcome, considering the “why, what, how, who, when” from the previous slide
- Work on the handout

## **Part 2: Sharing (4 minutes)**

- Share with a partner



# Some assessment examples you have seen...

	Level of Mastery			
	Exemplary	Competent	Developing	Beginning
<b>Contribution to workshops</b> In IET 1 to IET 4...	I feel that I contributed equitably to all group discussions and workshop activities, and made consistent efforts to ensure others also contributed equitably (e.g. ensured everyone had equal opportunity to speak and no one dominated).	I feel that I contributed equitably to all group discussions and workshop activities, and allowed others the opportunity to also contribute equitably.	I feel that I contributed to almost all group discussions and workshop activities, but occasionally over- or under-contributed.	I feel that I contributed only to some group discussions or workshop activities, or occasionally prevented others from being able to contribute equitably (e.g. dominated discussion, interrupted, or distracted others).
<b>Learning progress</b> For IET 1 to IET 4...	I feel that I can easily apply the concepts from the workshops towards my own teaching, and teach others how to do the same.	I feel that I can apply the concepts from the workshops towards my own teaching, with a little bit of time and thought.	I feel that I can apply most of the concepts from the workshops to my own teaching, with a little bit of help from others.	I feel that I do not understand many of the concepts from the workshops and cannot properly apply them.
<b>Application</b> Between IET sessions...	I have devoted time for deliberate reflection on the workshop topics, and have actively tried to apply some topics to my courses or teaching.	I have spent some time thinking about the workshop topics and occasionally pondered how they might integrate into my teaching.	I have casually considered some of the topics from the workshops.	I have not considered the topics from the workshops.
<b>Teaching views</b> As a result of the IET sessions...	I have been actively reflecting on my own views of teaching, and have considered how new ideas I have been exposed to have supported/challenged my views.	I have been considering my own views of teaching, and have tried to incorporate new ideas I have been exposed to.	I have occasionally been thinking about my views of teaching.	I have not considered my views of teaching since the start of the workshop.

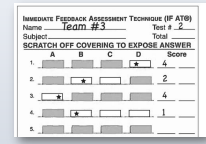
self-assessment rubric

**Task: IF-AT ("scratch card") Review Quiz**  
*IF-AT = Immediate feedback assessment technique*

**Instructions:** Work as a team to complete the short multiple choice review quiz

Typical scoring per question:

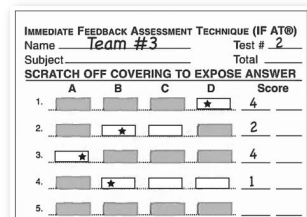
- 4 pts for one scratch to reveal the ★
- 2 pts for two scratches
- 1 pt for three scratches
- 0 pts for four scratches



Canadian Engineering Education Association Conference June 3 – 6 2018 Institute of Engineering Education

Collaborative testing with IF-AT cards

**Was the review quiz formative or summative?**



Canadian Engineering Education Association Conference June 3 – 6 2018 Institute of Engineering Education

Group discussion

**Task: What properties should be present in a well-functioning assessment?** (i.e. what would we want an assessment to achieve in order to continue using that assessment tool)

1. Individually brainstorm and jot down your ideas
2. Have at least one person at your table **access the online form** to the right
3. Add ideas to the online form that your table agrees on




bit.ly/ceea-iet5

TIME LEFT (6 mins)

Collaborative task and report

**Self-Evaluation Rubric Revisited**

What are some of the benefits of using rubrics in assessment?



Canadian Engineering Education Association Conference June 3 – 6 2018 Institute of Engineering Education Teaching

self-assessment rubric evaluation

**Task: Application to your teaching**

**Part 1: Individual Worktime (10 minutes)**

- Select one learning outcome you drafted in Session 2
- Identify an appropriate assessment tool for that outcome, considering the "why, what, how, who, when" from the previous slide

**Part 2: Sharing (4 minutes)**

- Share with a partner

Canadian Engineering Education Association Conference June 3 – 6 2018 Institute of Engineering Education Teaching

Application and sharing

# Task: Closing Reflection and Parking Lot

- 1. Individual:** What are two concepts, ideas, or tools you have taken from this session that you will try to implement?
- 2. Table:** What are two remaining questions at your table about the topics of this session?  
*Add them to the post-it notes and hand them in. We will add to the parking lot and revisit them during IET Session 6.*
- 3. Individual:** please complete the session survey for this workshop (found on the conference Guidebook app)

# Extra materials...

# Task: A Gamified Multiple Choice Quiz

1. Work individually or pair up with someone if you do not have a device with Wi-Fi connected.
2. **Access the website** to the right.
3. The questions are all nonsense; you will need to **guess** the correct answers.
4. There are five multiple choice questions – the faster you answer, the more points you get!



[bit.ly/ceea-mcq](https://bit.ly/ceea-mcq)