CIS Ontario

Conference of Independent Schools of Ontario

Connects Unconference

Experiential Learning through and with technology (AR, VR, XR)

AM Session

Session Format (120 min)

Welcome	**5 min**	Facilitator Introductions & overview
Learn	**25 min**	Session f**acilitators to share their experience / learning**
Reflect & Share	**25 min**	Facilitated table **sharing of expertise and prior knowledge**
Deep Dive	**30 min**	Facilitated **deep dive** into a session sub questions.
Record & Consolidate	**30 min**	Participants consolidate with the infographic **exit ticket**
Gallery Walk	**5 min**	Conversations and connections during the coffee break.

Core Agreements

- **Respect your own air-time**, and that of your fellow participants
- **We are all experts:**
  - Experts in how to collaborate
  - Experts in how to support one another
  - Experts in how to be generative in our dialogue
  - Experts in generous listening
- **We don't know it all:**
  - We all have room to grow, we benefit most when we listen with an open mind
  - We all come from different schools and different cultural contexts,
- **Network & Connect**
  - Continue the conversation during the breaks and over lunch

Morning Session: Nice to Meet you!

Greg Baschuk
Director of IT
St. Mildred's-Lightbourn School

Garth Nichols
VP Student Engagement & Experiential Development
Havergal College

Experiential Learning through and with technology (AR, VR, XR)

"How might we leverage new technology to enable immersive and experiential learning?"

Your Conference Placemat

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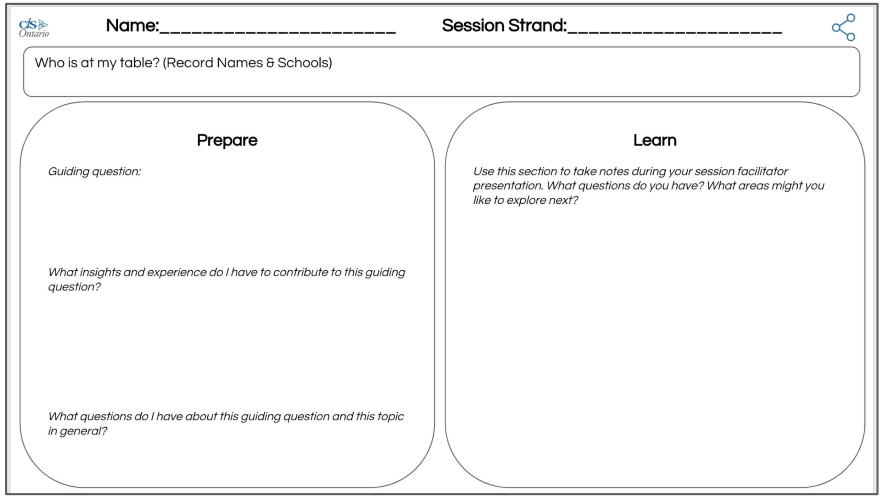
- Follows the flow of the session
- Provides you with prompts and space to ask questions, write ideas, and document your learning.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Who is at my table? (Record Names & Schools)

Prepare

Guiding question:

What insights and experience do I have to contribute to this guiding question?

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Learn

Use this section to take notes during your session facilitator presentation. What questions do you have? What areas might you like to explore next?

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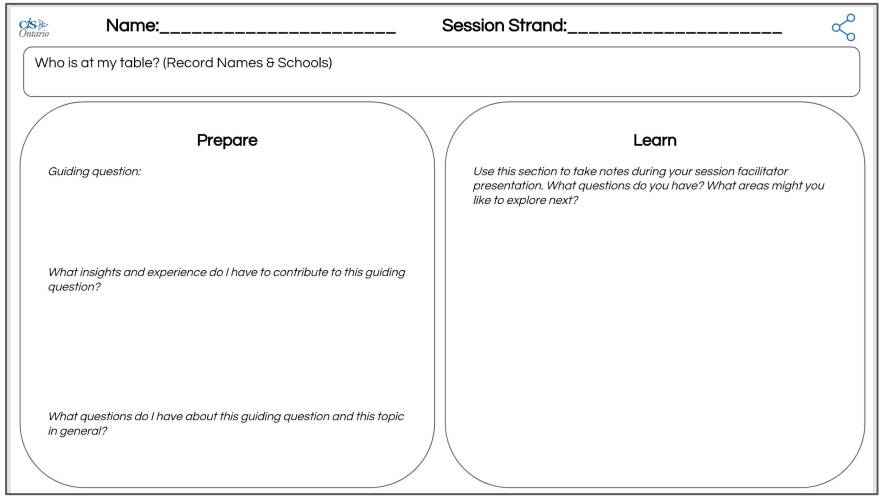
Prepare & Learn

Prepare

- 5 min solo reflection and expertise inventory.
- What do you know already and what are you curious about?

Learn

- 20 min presentation from your facilitators.
- Take notes
- Write down questions and ideas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Why Explore XR as a form Of Experiential Learning?

A1: We are living in the 4th cycle of computing power

SETH'S BLOG

Search

Subscribe

The fourth cycle of the hive mind (and what to do about it)

The first cycle of computers was good at:

- arithmetic
- and storing data

A2: There is research on this


VR AT
SCHOOL

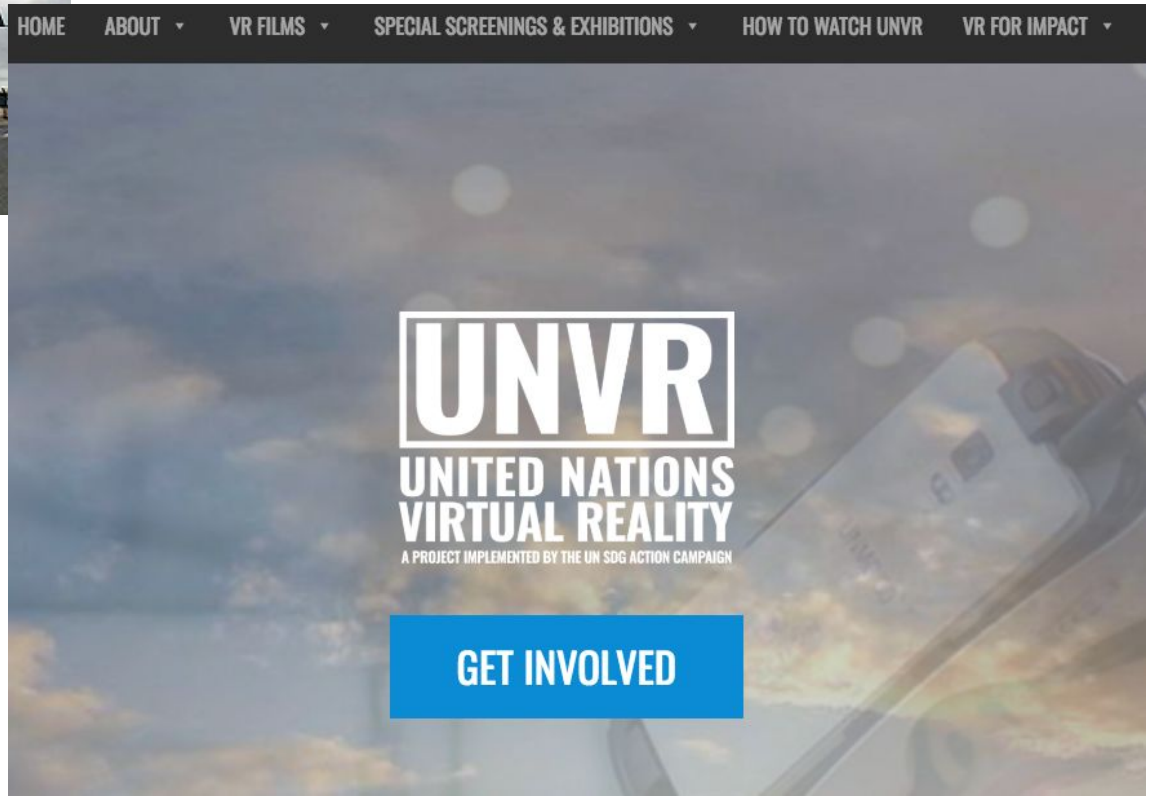
But there are challenges and barriers that have yet to be overcome...

A3) It’s almost like being there!

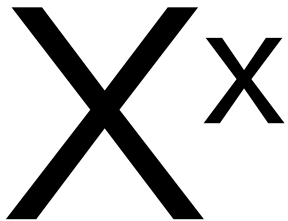
A4) It has the power to build empathy and compassion


Sheffield
2015
CLOUDS OVER SIDRA


ENTERING
PINE RIDGE
INDIAN RESERVATION
LAND OF THE OGLALA SIOUX
RED CLOUD
BLACK ELK
CRAZY HORSE
NO HUNTING WITHOUT
TRIBAL PERMITS

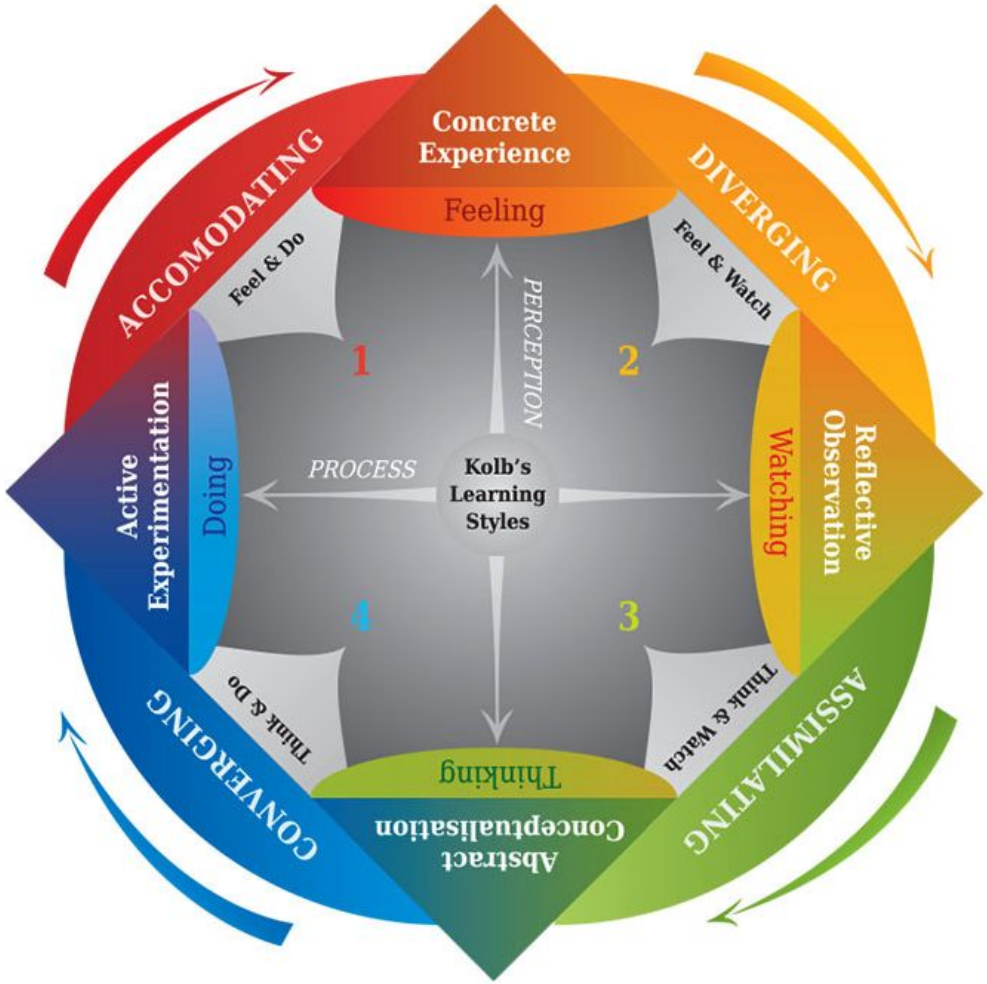

HOME
ABOUT
VR FILMS
SPECIAL SCREENINGS & EXHIBITIONS
HOW TO WATCH UNVR
VR FOR IMPACT
UNVR
UNITED NATIONS
VIRTUAL REALITY
A PROJECT IMPLEMENTED BY THE UN SDG ACTION CAMPAIGN
GET INVOLVED

A4) We cannot ignore XR as Experiential Education?



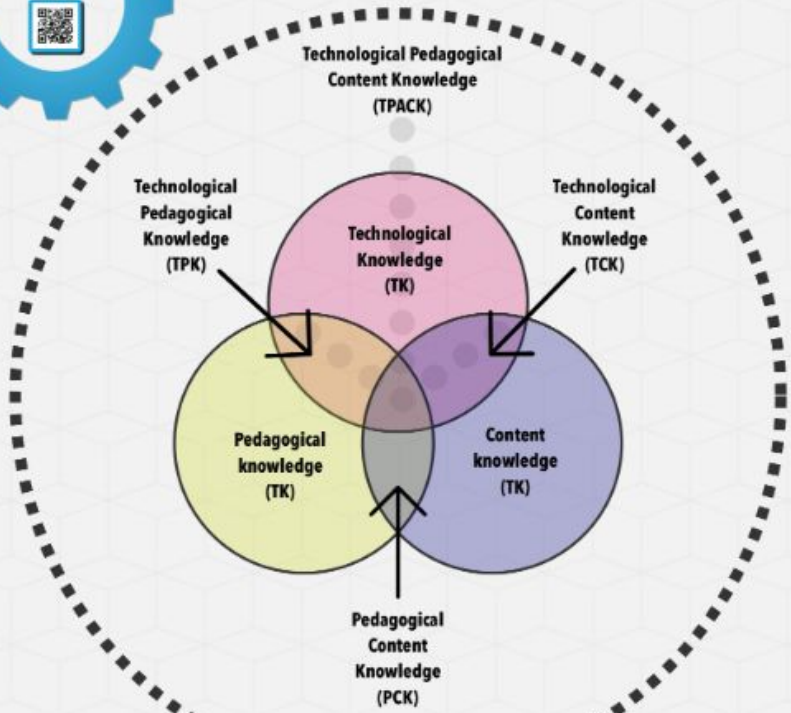
7D experiences in development: https://youtu.be/GxpMBRmYpcQ

https://youtu.be/0PZzFsM-rjM

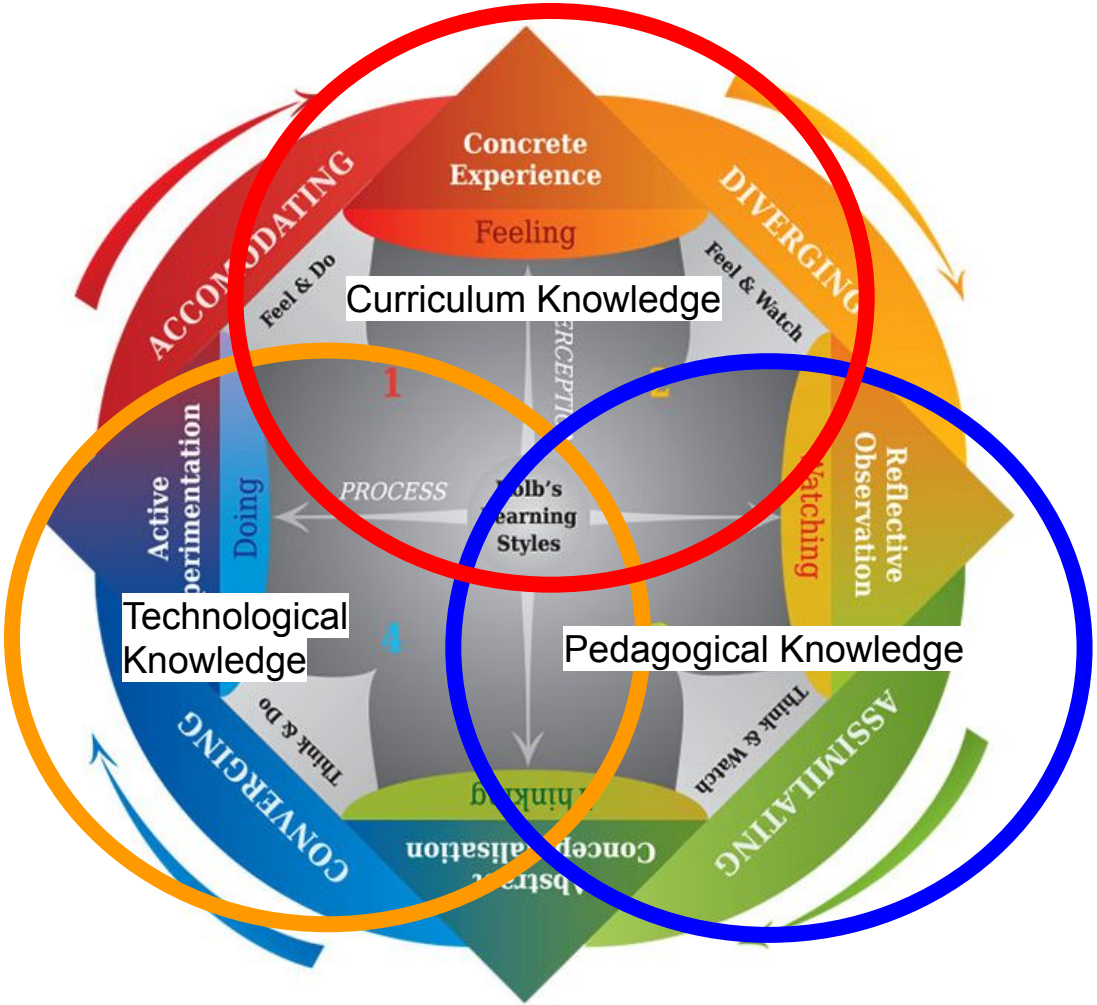

Concrete Experience
Feeling
DIVERGING
Feel & Watch
Reflective Observation
Watching
ASSIMILATING
Think & Watch
Abstract Conceptualisation
Thinking
CONVERGING
Think & Do
Active Experimentation
Doing
ACCOMODATING
Feel & Do
PERCEPTION
PROCESS
Kolb's Learning Styles
1
2
3
4

(TPACK)

MARK ANDERSON
@CTEVANGELIST



TPACK is truly meaningful, deeply skilled teaching with or without (because sometimes this can be the best choice) technology."


Concrete Experience
Feeling
Feel & Do
Feel & Watch
DIVERGING
ACCOMMODATING
Curriculum Knowledge
Active Experimentation
Doing
PROCESS
Kolb's Learning Styles
Reflective Observation
Watching
Technological Knowledge
Pedagogical Knowledge
Think & Do
Think & Watch
CONVERGING
ASSIMILATING
1
2
4

Grant Lichtman

We are going to create **the first truly student-voice VR production by students from radically different American backgrounds.** Following the lead of empathetically powerful VR content like Clouds Over Sidra, a team of design-focused students from the largely white Atlanta suburbs will collaborate with Native American students from **one of the lowest-income zip codes in America**, to produce a student-voice virtual reality documentary of life on the Pine Ridge Indian Reservation in South Dakota.

Young Voices From Pine Ridge: A Groundbreaking Student-led Project in Virtual Reality

From: NMC/CoSN Horizon Report: **2017 K–12 Edition**

Virtual Reality - Time-to-Adoption Horizon: Two to Three Years

"As pedagogies that favor student-centered learning approaches continue to take hold across the world, **tools such as VR that enable more experiential learning opportunities are increasingly valued…**"

"Penetration is set to dramatically increase in 2017 as the International Data Corporation forecasts that global revenues for augmented reality and virtual reality will total $13.9 billion this year, up from $6.1 billion in 2016. In the education realm, Goldman Sachs predicts that **VR could reach 15 million learners by 2025**…"

"While studies of immersive VR in the classroom are scarce, several investigations are showing promising results. A recent GfK survey of US K–12 educators commissioned by Samsung found that 85% of teachers agree that VR would help their **students understand learning concepts and facilitate greater collaboration, and 84% believe the technology would increase student motivation.** Chinese researchers investigated VR's impact on academic performance in language learning and found **a 32% increase in retention rates in test groups.…**"

SMLS's Virtual Reality Journey So Far...

Current Equipment:

- (Two Units) Oculus Rift Touch with Controllers
- (One Unit) HTC Vive VR Headset with Controllers

Oculus Rift Touch

HTC Vive

Our VR Computers:

Alienware Aurora PC Tower

- i7 CPU, 16GB RAM, Two GTX 1080 (8GB) configured in SLI (16GB total GPU), SSD HD's

EVGA PC Tower

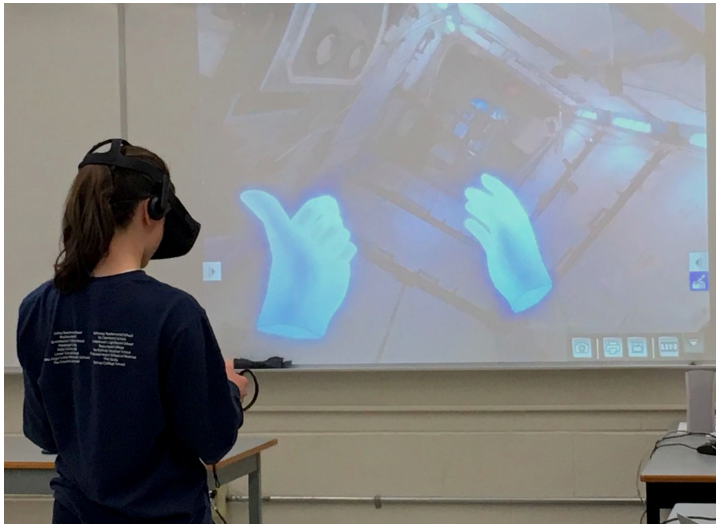
- i7 CPU, 16GB RAM, GTX 1080 Ti (11GB), SSD HD's

Plus… Carrying Cases, Cables, Misc accessories/adapters

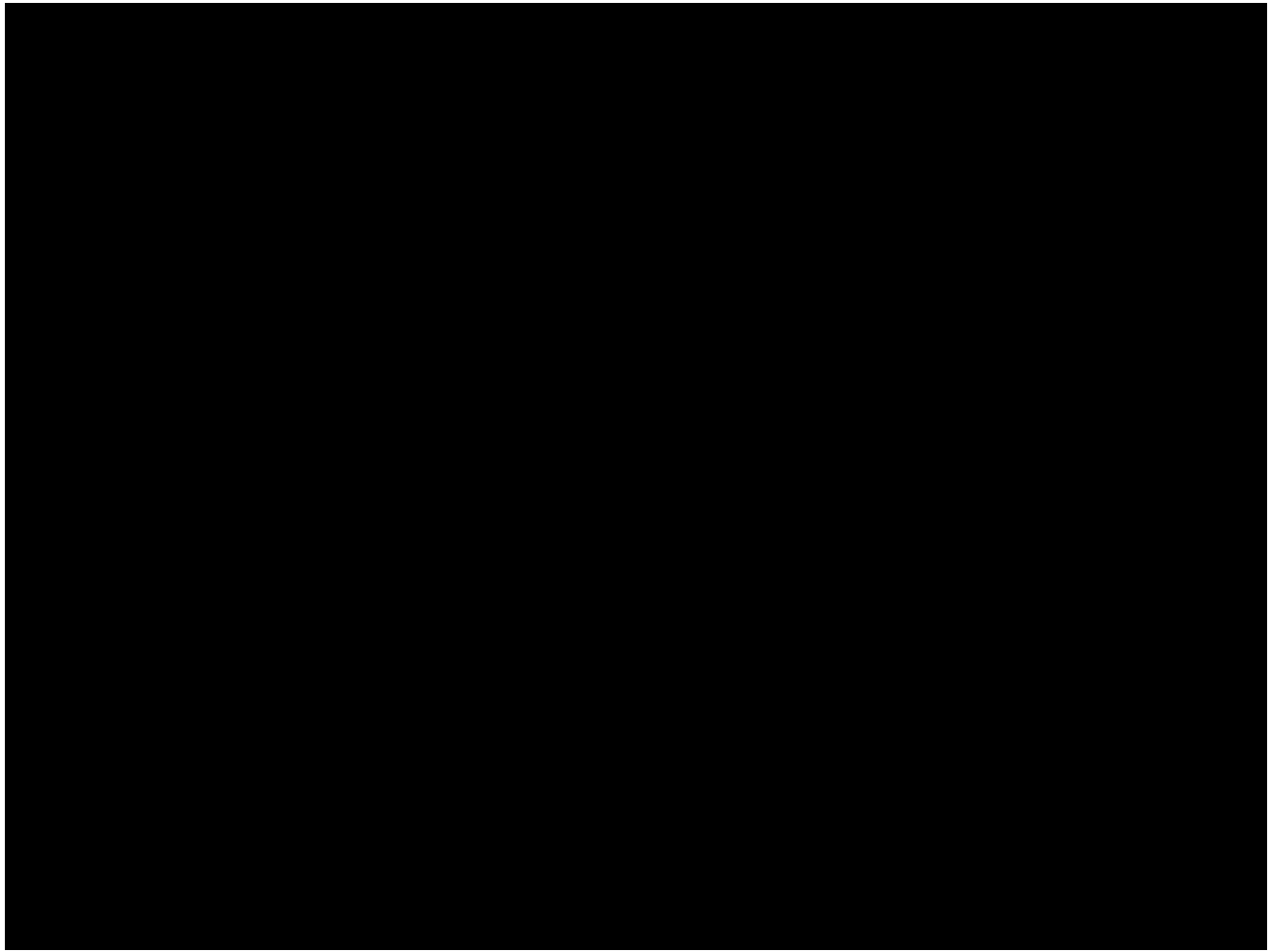
- Entire VR setup can be moved from classroom to classroom.
- Setup time is about 5 minutes for the Oculus Rift, about 10-15 minutes for the HTC Vive

While one student is using the VR headset, the entire class still “sees” what is happening in the headset as the live video output is projected to the classroom projector.

This inherently leads to very collaborative sessions!



Student experiencing the inside of the ISS



Examples of Virtual Reality Use at SMLS

Tilt Brush by Google

Used by MS8 students as an intro to VR

Examples of Virtual Reality Use at SMLS

Mission:ISS

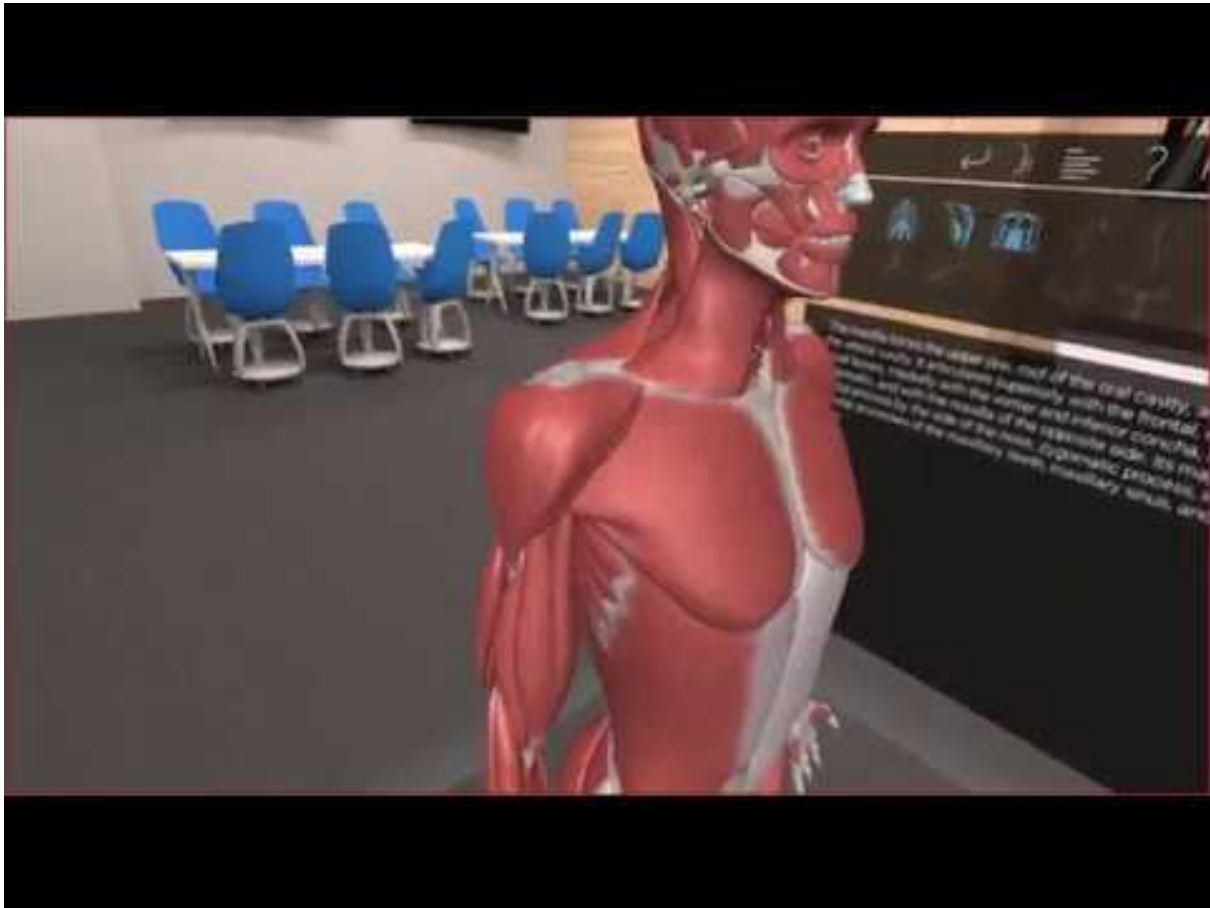
Used by SS9 Science Students

Examples of Virtual Reality Use at SMLS

3D Organon VR Anatomy

Used by SS11 Biology Students

Upcoming use by SS12 Kinesiology Students



Examples of Virtual Reality Use at SMLS

Google Earth VR

Used by SS11 World History Students
&
SS12 Geography Students

Examples of Virtual Reality Use at SMLS

World History VR Project

Google Earth VR used by SS11 students in World History class. The assigned project required the students to use a variety of technologies to create a documentary style tour video of various ancient historical sites in Greece and Rome.

Windows Video Capture, Google Drive, iMovie and Google Maps were all used in addition to the Google Earth VR application for this project.

Google Earth VR was used by each student group where they captured/recorded the live video footage from the VR headset. This footage was then imported and edited in iMovie adding a audio track with narration and commentary.

The final video was then exported and shared out via Google Drive to their teacher for assessment.

Examples of Virtual Reality Use at SMLS

SS11 World History Class

Student Example (Clip)
from 2017-2018


CAUTION
PROCEED WITH
CAUTION

Reflect & Share

Reflect on your answer to Question #1

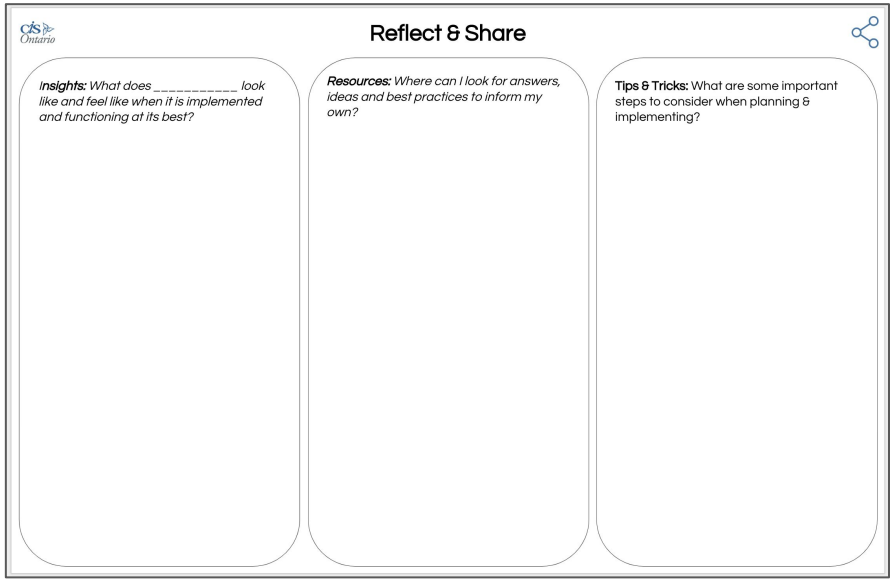
- 1 min (solo)

Share Your answer to Question #1

- 7 min (group share)

Repeat with Question #2 and #3

** This should take 30 min total**
** Record all you hear and learn on your placemat



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Deep Dive

Reflect on your answer to Question #1

- 1 min (solo)

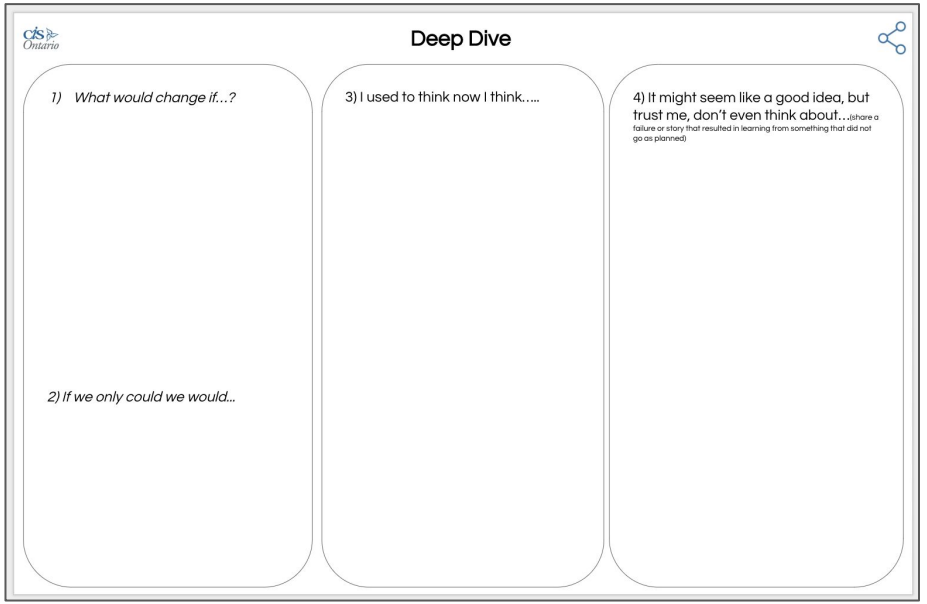
Share Your answer to Question #1

- 4 min (table share)

Share your answer with the Room

- 4 min room share

Repeat with Question #2 , #3, # 4



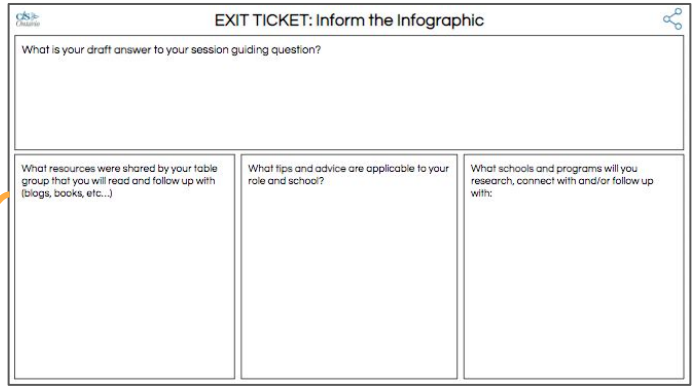
EXIT TICKET: Inform the Infographic

Inform yourself:

- 5 min solo reflection
- Consolidate your learning on your placemat

Inform the Infographic:

- 20 mins group synthesis to create the table infographic



Gallery Walk

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Afternoon Session: Nice to Meet you!

Allison Campbell-Rogers
Geography Teacher / Innovation Support @Branksome Hall

Afzal Shaikh
Associate Director of Learning, Innovation and Technology @The York School
@Edushaikh

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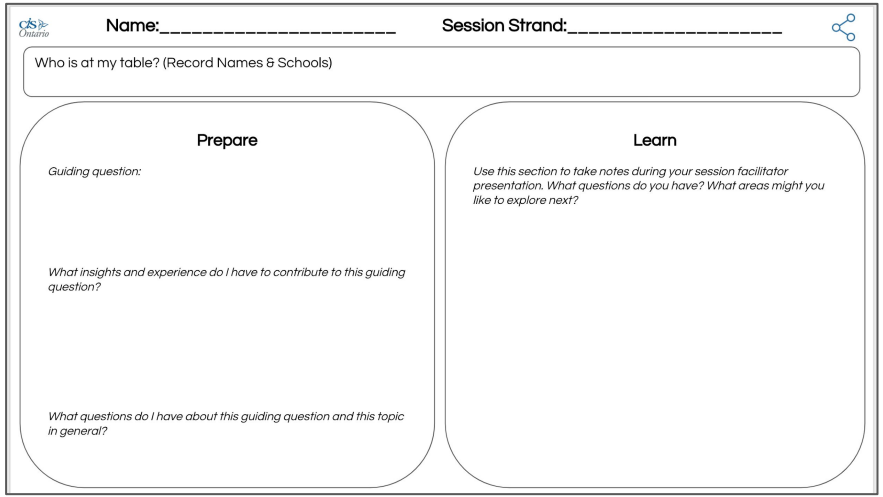
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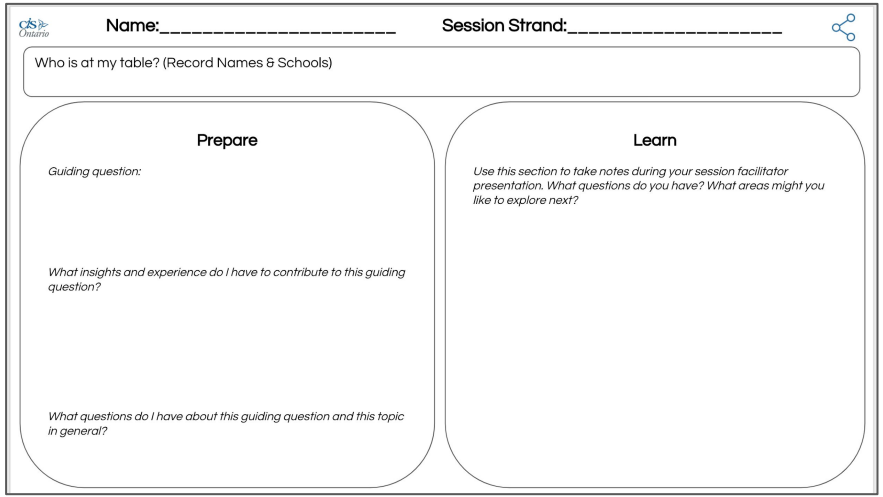
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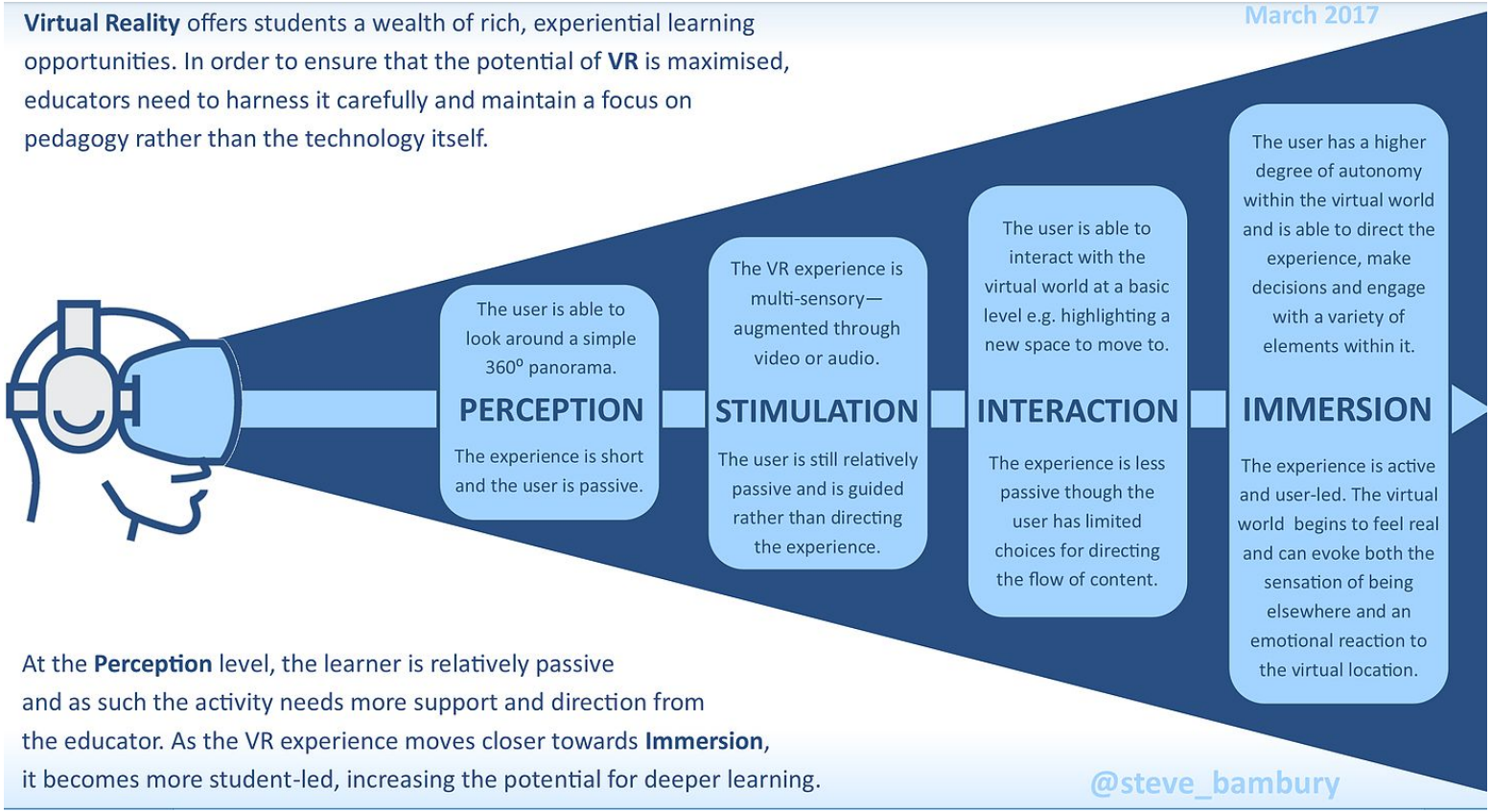
Let’s write down our Guiding question:

“How might we leverage new technology to enable immersive and experiential learning?”

"You never really understand a person until you consider things from his point of view… until you climb inside of his skin and walk around in it."
-Harper Lee, *To Kill a Mockingbird*

Virtual Reality and Integration into the Classroom



Blog post topics sample from www.virtualiteach.com

800 Educational 360° Videos on YouTube

December 28, 2018

As a fresh challenge for 2019, I've decided to renovate my YouTube channel and start producing original content on there rather than just use it as a receptacle for videos I embed here on the...

Read More

Five ways to use AR/VR for language learning

October 23, 2018

Language learning is one area of education that is genuinely being transformed through the implementation of immersive technologies. Interactive and engaging, AR and VR also benefit from break...

Read More

VR in the Early Years Classroom

November 11, 2018

One of the most common questions I am asked is to do with student age and VR headsets. People want a magic number for kids to start using VR. Obviously there isn't one so common sense prevails...

Read More

The Top 10 VR Edu Apps of 2018

January 1, 2019

My December column for VR Focus was a top ten list of educational VR apps for 2018. As opposed to my list from 2017 (which you can read here) I chose not to just focus on Steam-based apps this...

Read More

Connecting Curriculum & Action: Clouds Over Sidra

"What we care about are the people who are local to us, and virtual reality can take anyone in any place and make them feel local to you."

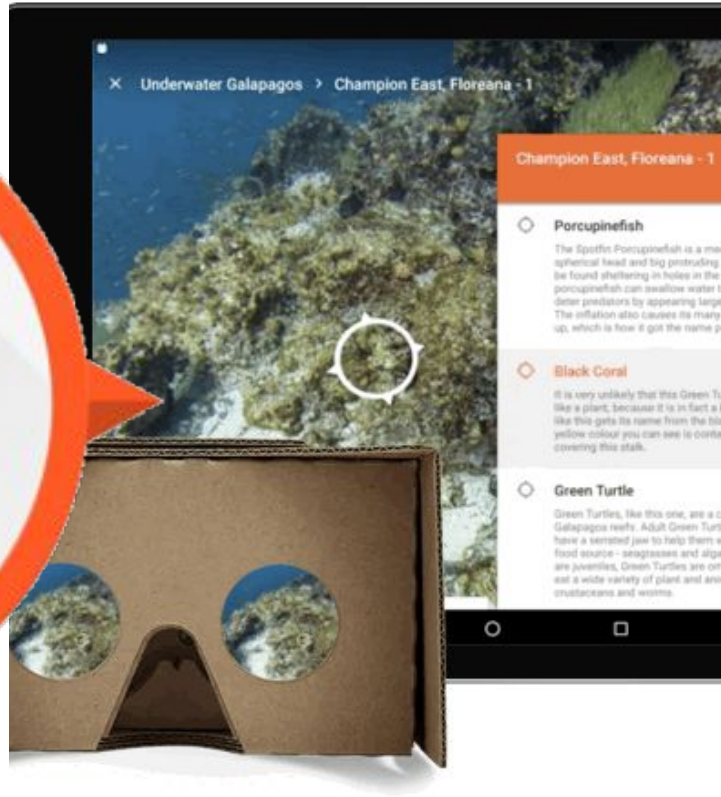
-Chris Milk

Design Thinking Application: Empathizing with ‘User’

How might we improve the quality of life of a long term care residents through a simple, innovative solution?

http://www.awalkthroughdementia.org/

Google Expeditions App



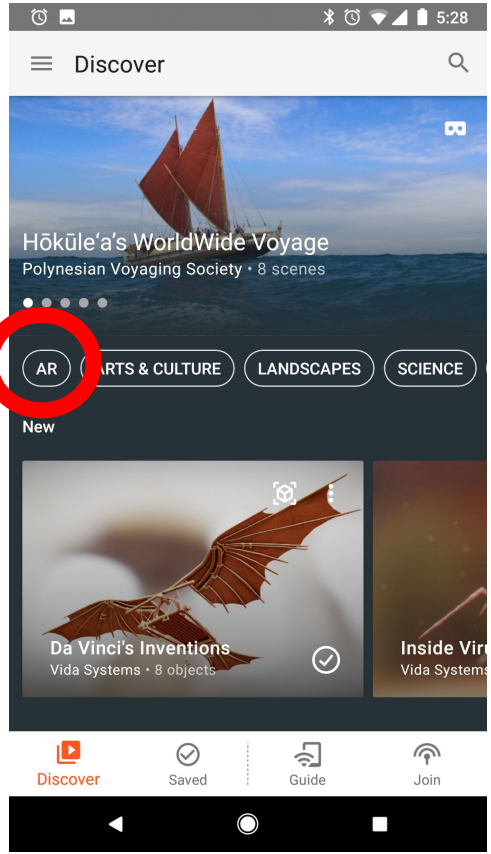
Google Expeditions App

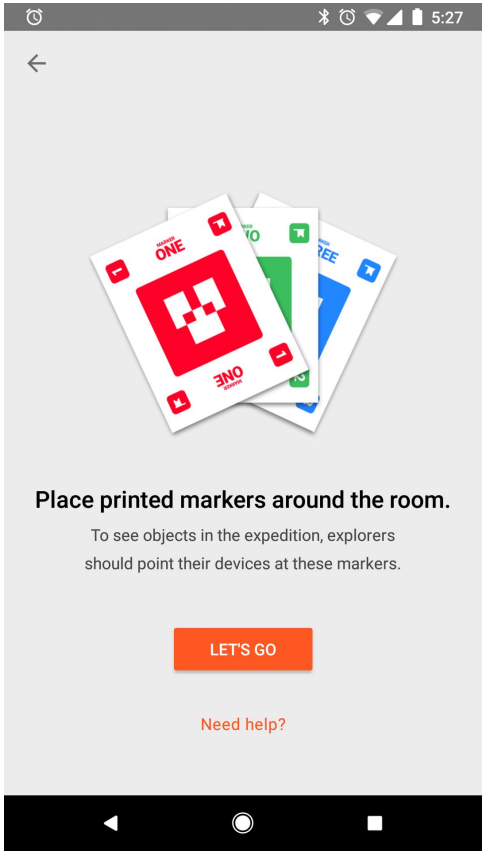
Students become explorers

Virtual field trips

Exploring Careers

Pre-content Energizer





https://vr.google.com/tourcreator/

Google Tour Creator

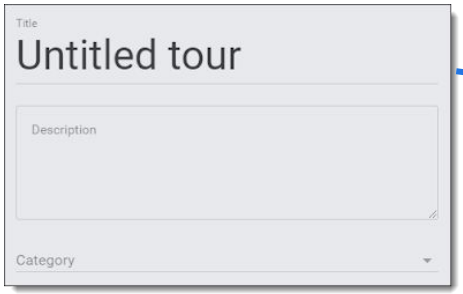
Create your own immersive 360 degree tours

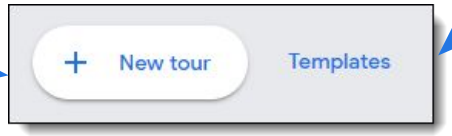
Features:

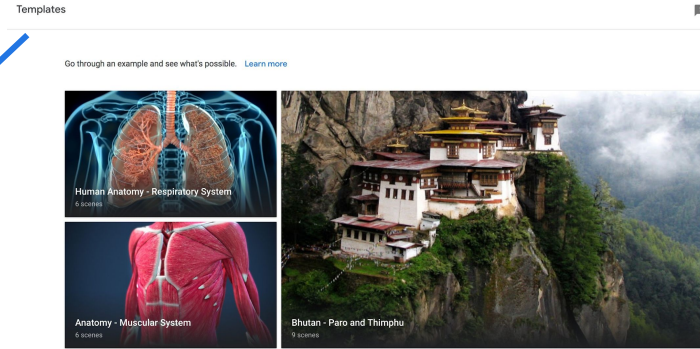
- 360 degree images
- Voice narration
- Text descriptions
- Points of interest
- Image overlays

View these tours in:

- A 360 degree camera
- The Google Cardboard Camera mobile app
- Google Street View

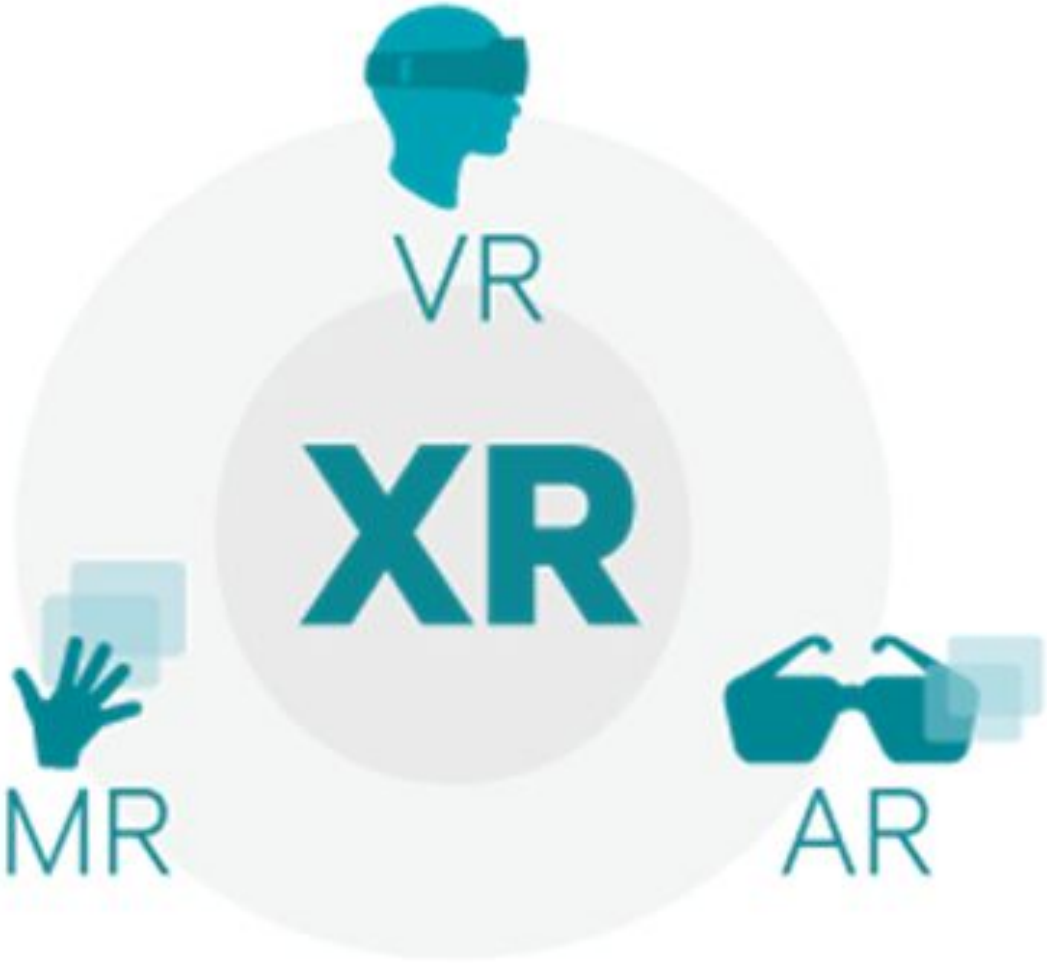






Google Tour Creator

Antarctica: The White Continent (By: Donnie Piercey)


VR
XR
MR
AR

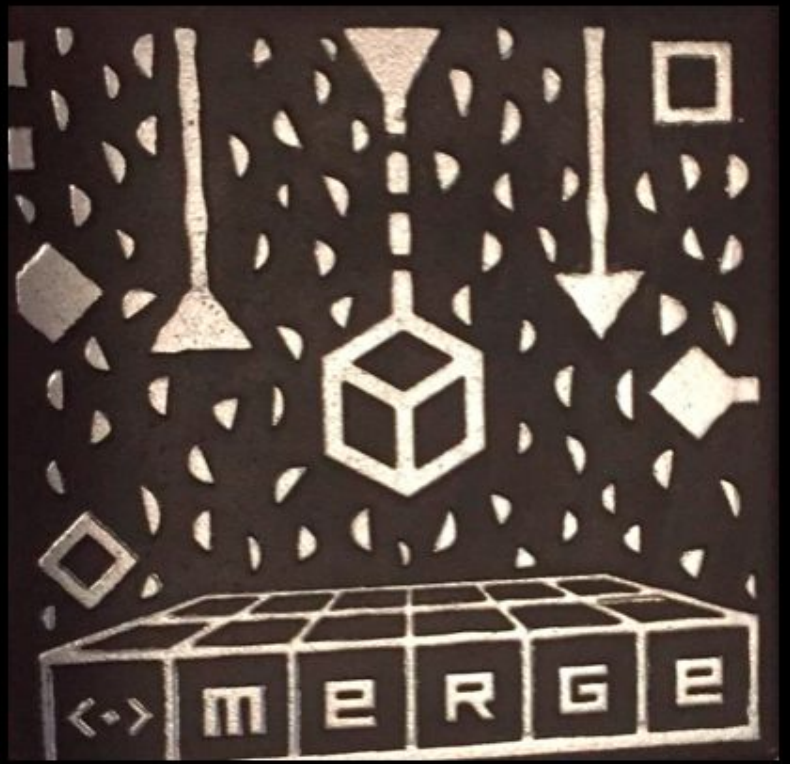
XR is the future

Do you have your own device? A smartphone? Then try this out…

Download this App

Open App, select I have a cube (skip)

Point your phone camera at this



Looking for a weekend project to do?

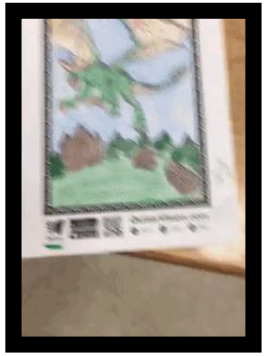
Build your own AR sandbox

https://arsandbox.ucdavis.edu/instructions/

http://www.instructables.com/id/Augmented-Reality-Sandbox/

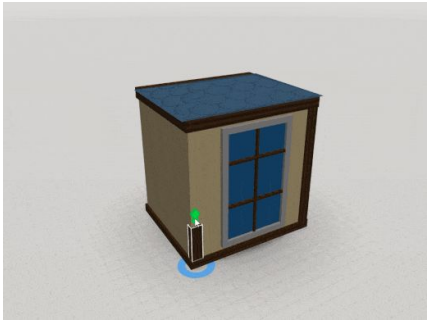
AR 3D Coloring App - premade

http://www.quivervision.com/



Co Spaces Edu Lets students build their own 3D creations

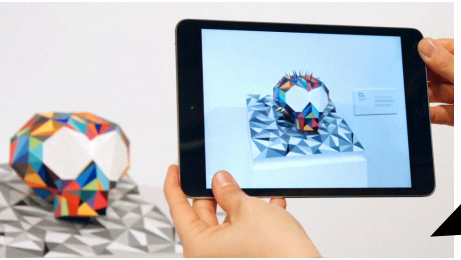
http://www.quivervision.com/



So much to learn..

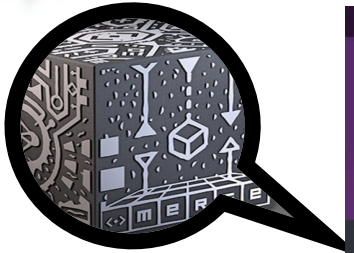
HP Reveal - Interact with the world around you

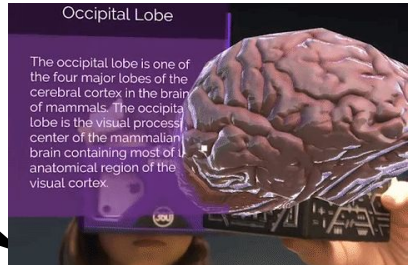
http://www.hpreveal.com



Merge Cube - Holding an object changes the we learn

https://mergevr.com/cube

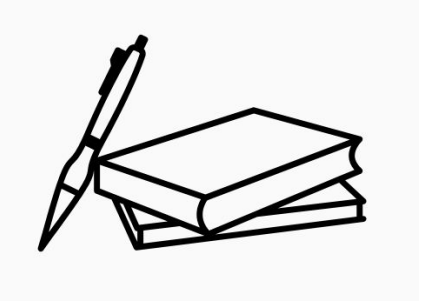




Top Tips if you're just starting out...

- Be selective in when you choose to use the technology and keep it short
- Essential to nest the experience in a broader framework connected to learning outcomes and goals.
- Dedicate ample time to developing appropriate context beforehand and debriefing / reflecting afterwards.
- Consider the placement of a VR experience in the year; some topics really benefit from the establishment of trusting, strong teacher-student relationships prior to the experience.
- Consider integrating a VR experience into an IDU to push forward connections
- Be open to seeing where the experience takes the students; follow up on their areas of interest around taking action and support the coordination of a plan

Top 5 Resources:



Virtuali Teach: All things AR/VR for Education
www.virtualiteach.com

Stanford Virtual Human Interaction Lab: SEL-Based Research/VR Films
https://vhil.stanford.edu/

Commonsense Media : Research on Kids & VR
https://www.commonsense.org/education/blog/what-the-research-says-about-vr-in-classrooms

UNVR: An SDG Action Campaign: SDGs/Empathy/Social Change VR Film Topics
http://unvr.sdgactioncampaign.org/

TED Talk: Chris Milk - How virtual reality can create the ultimate empathy machine.
https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine

Recommended Hashtags to Follow:

#CPDinVR

#VR

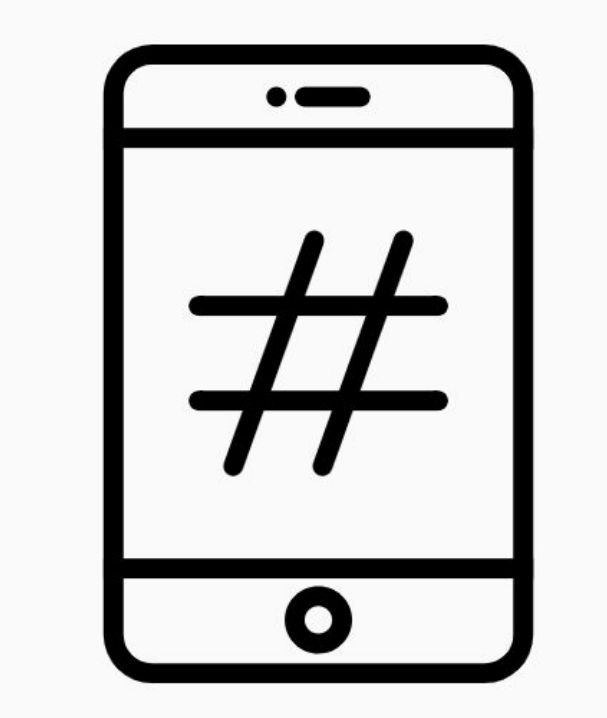
#ARVRinEDU

#VRinEDU

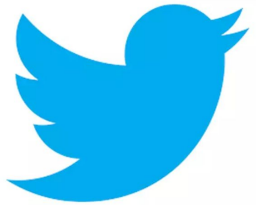
#VREDUchat

#virtualreality

#VR360



People to Follow on Twitter:



@steve_bambury
Head of Digital Learning and Innovation at JESS Dubai – an IB School / Founder of 'Virtuali Teach'

@paoplayz
Director of VR/AR Immersive Technology Education at the IB International School of Nanshan Shenzhen

@RonanMcNicholl
Head of Digital Learning at Seven Oaks School an IB school, UK

@micahshippee
EdTech Educator / researcher/ speaker, Syracuse NY


An expert
Not an expert
Can you spot the difference ?
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Reflect & Share (30min)

Reflect on your answer to Question #1

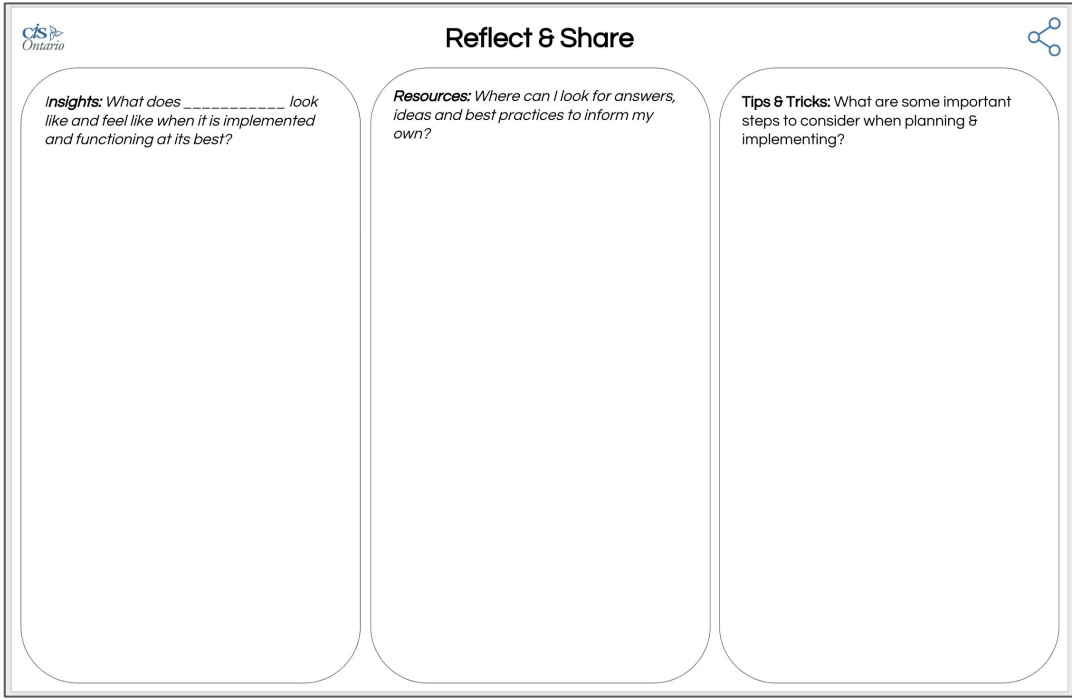
- 1 min (solo)

Share Your answer to Question #1

- 7 min (group share)

Repeat with Question #2 and #3

** This should take 30 min total**
** Record all you hear and learn on your placemat



CIS Ontario
Conference of Independent Schools of Ontario
Connects Unconference

Deep Dive

Reflect on your answer to Question #1

- 1 min (solo)

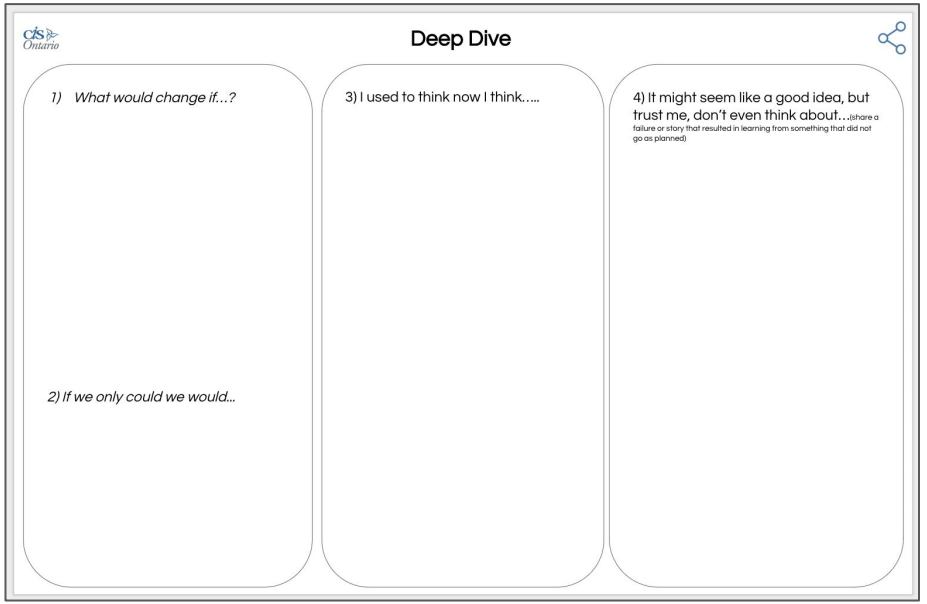
Share Your answer to Question #1

- 4 min (table share)

Share your answer with the Room

- 4 min room share

Repeat with Question #2 , #3, # 4



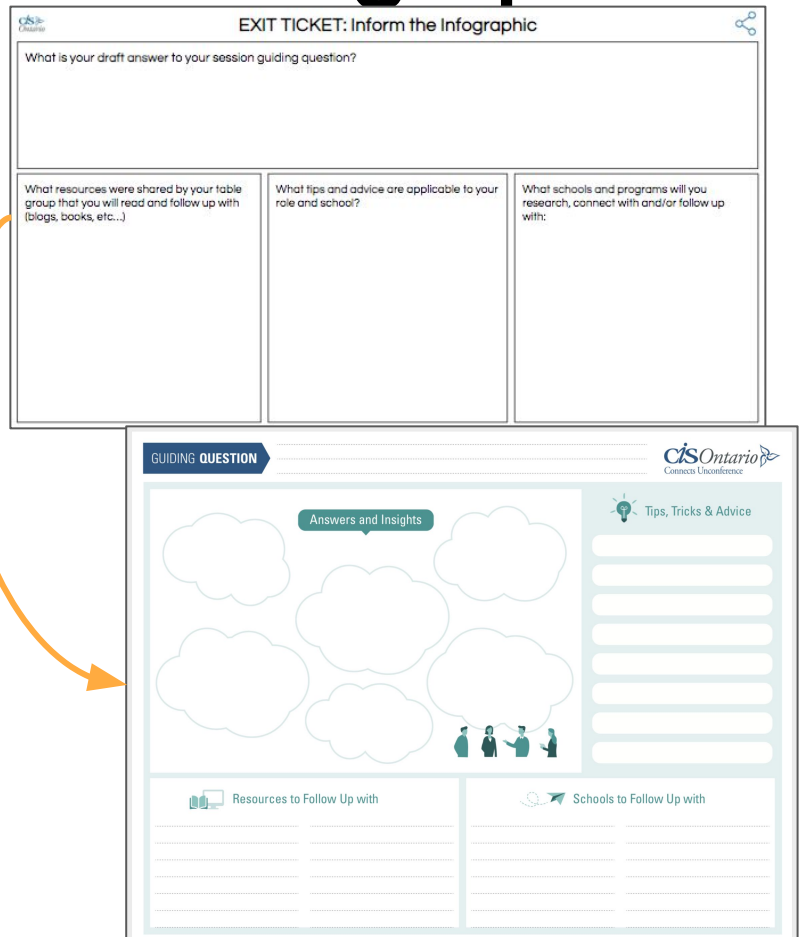
EXIT TICKET: Inform the Infographic

Inform yourself:

- 5 min solo reflection
- Consolidate your learning on your placemat

Inform the Infographic:

- 20 mins group synthesis to create the table infographic



Gallery Walk