



Assistive Technology and Universal Design for Learning

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SWLSB RTN (Elementary)**

2015-01-05

coffee



I think it's kicking in

Resources

1. Powerpoint available @ aldi.learnquebec.ca
2. UDL tools in this presentation available @
bit.ly/SWLUDL

Our discussion today

- What is Universal Design for Learning (UDL)?
- Designing accessible learning experiences
- 5 free AT tools for UDL implementation

What is Universal Design for Learning?

UDL is a guiding framework for implementation of assistive technology in the classroom.

To understand UDL, we have to discuss....

Student diversity



We have a diverse student population that needs flexible approaches to teaching and learning.

A TYPICAL ELEMENTARY CLASSROOM

***Students with
emotional
difficulties***



Students who are disengaged/demotivated



***Students with learning
disabilities***

***Students with
Autism
Spectrum
Disorders***

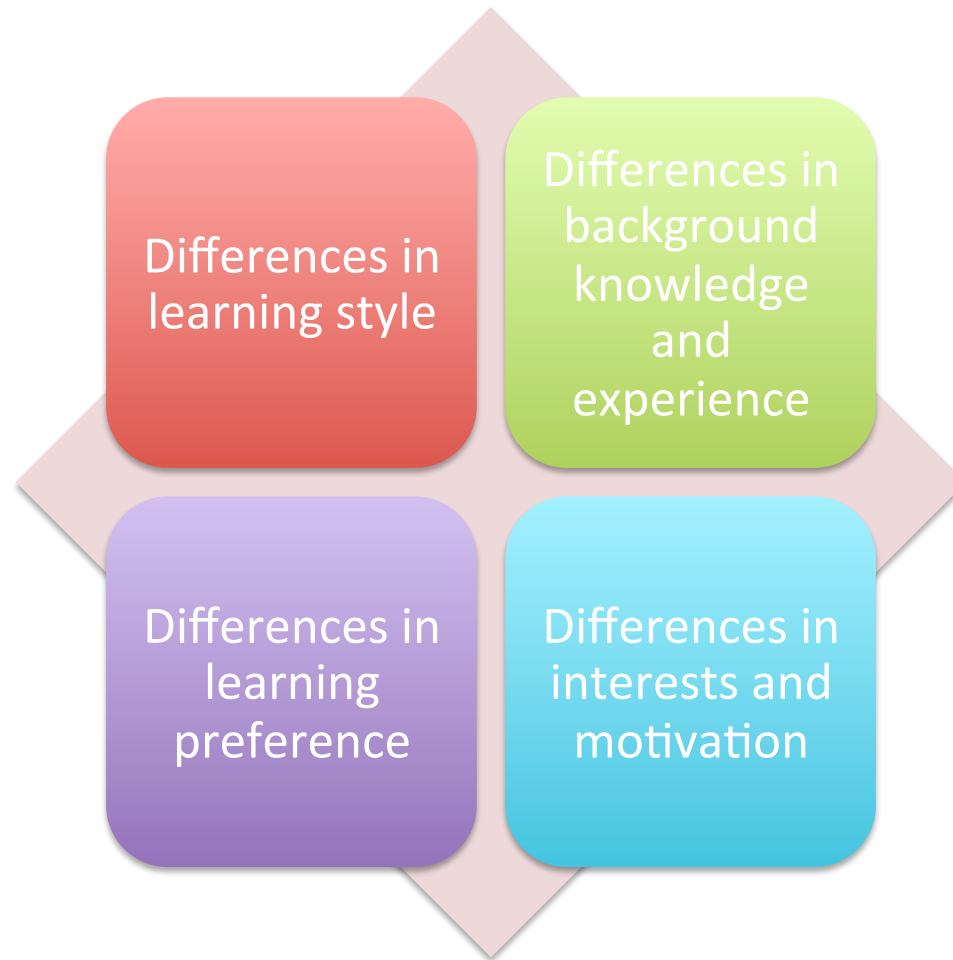


***Students who have difficult home lives/
conditions***



***Students who require
support for mental
health issues***

What does diversity look like?



How can we teach to diversity?

Introducing...

Universal Design for Learning (UDL)



What is UDL?

- An educational approach that aims to increase **access to learning** by reducing physical, cognitive, organizational and other **barriers**.
- A **flexible** approach that provides students of all abilities equal opportunities to learn.

The Origins of UDL

- Universal Design for Learning is an extension of an architectural movement called *universal design (UD)*

“Consider the needs of the broadest possible range of users from the beginning.”

-Ron Mace, pioneer and visionary of Universal Design



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Universal Design in the classroom means....

- ***Flexible*** learning experiences that can meet the needs of many learners.
- ***No retrofitting*** means designing accessible experiences from the beginning.

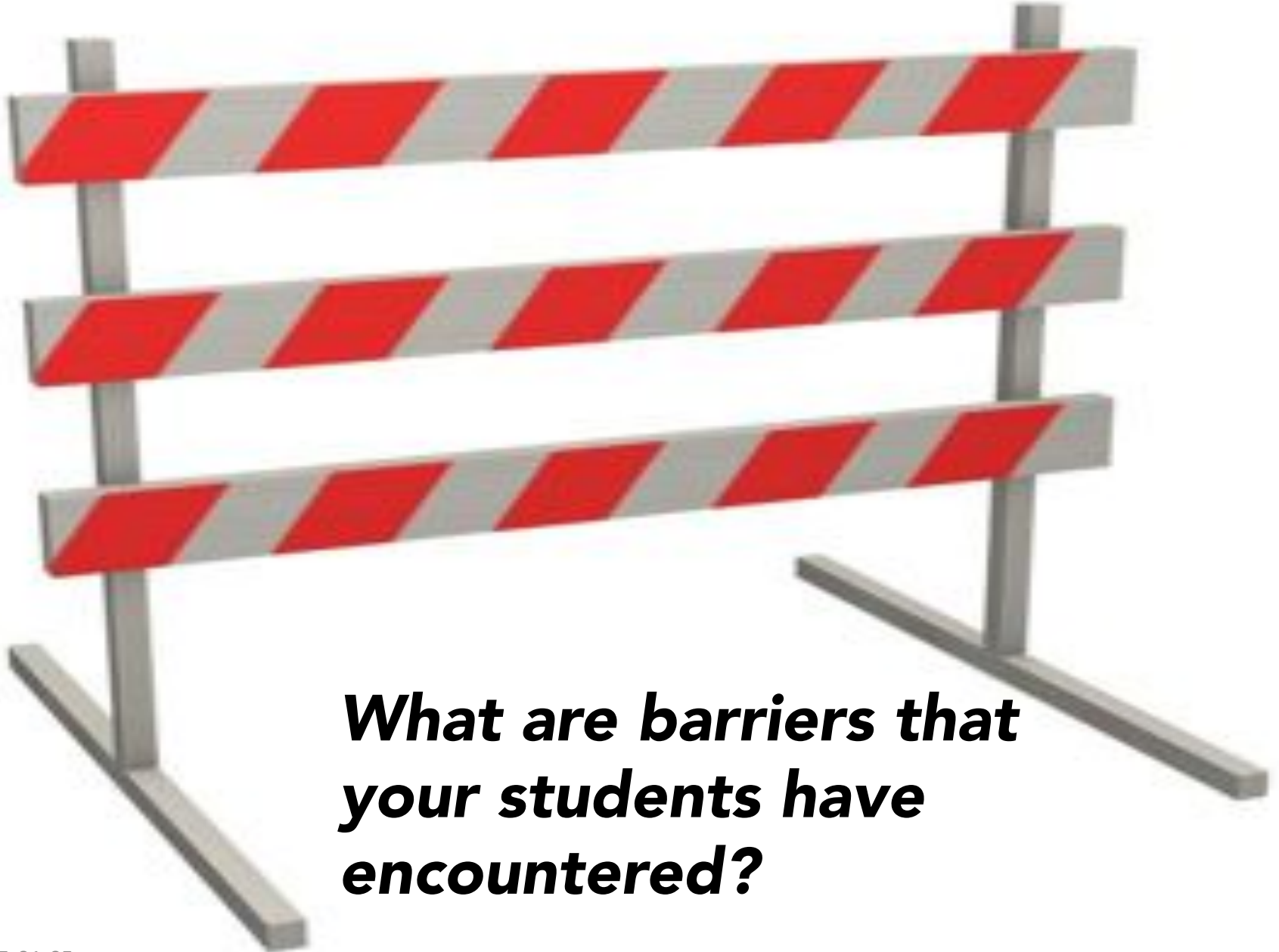
How to design accessible learning experiences

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1. Lower barriers

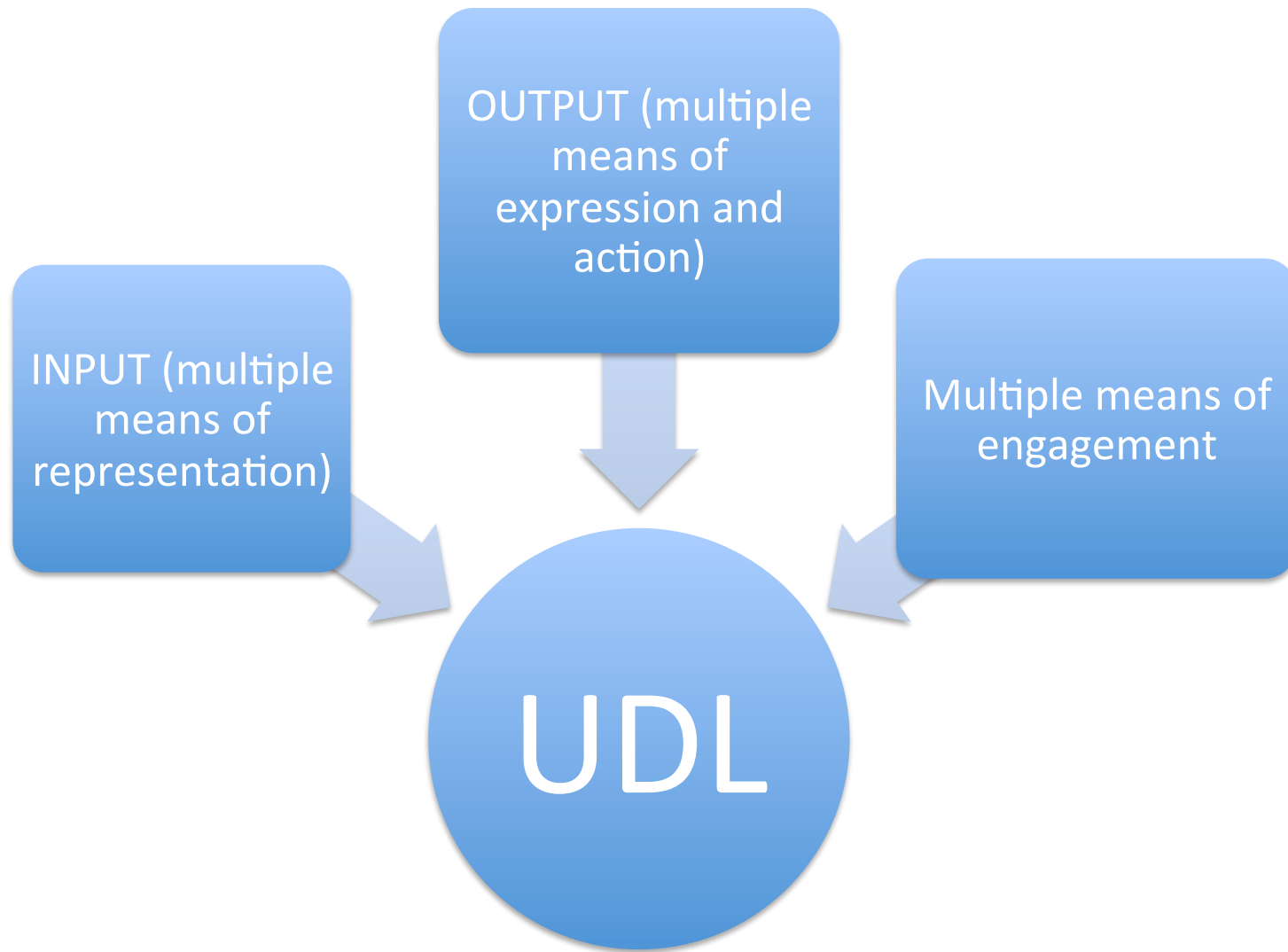
- *Delivery* of the curriculum can be a barrier to learning.
- A one-size-fits-all approach to instruction contains hidden barriers for many learners.



***What are barriers that
your students have
encountered?***

2. Flexible teaching and learning practices

1. How we **present information** to our students (INPUT)
2. How we allow our students to **express themselves** (OUTPUT)
3. How we **engage** our students



Universal Design for Learning

Recognition Networks

The "what" of learning



How we gather facts and categorize what we see, hear, and read. Identifying letters, words, or an author's style are recognition tasks.

Strategic Networks

The "how" of learning



Planning and performing tasks. How we organize and express our ideas. Writing an essay or solving a math problem are strategic tasks.

Affective Networks

The "why" of learning



How learners get engaged and stay motivated. How they are challenged, excited, or interested. These are affective dimensions.

UDL: The role of technology



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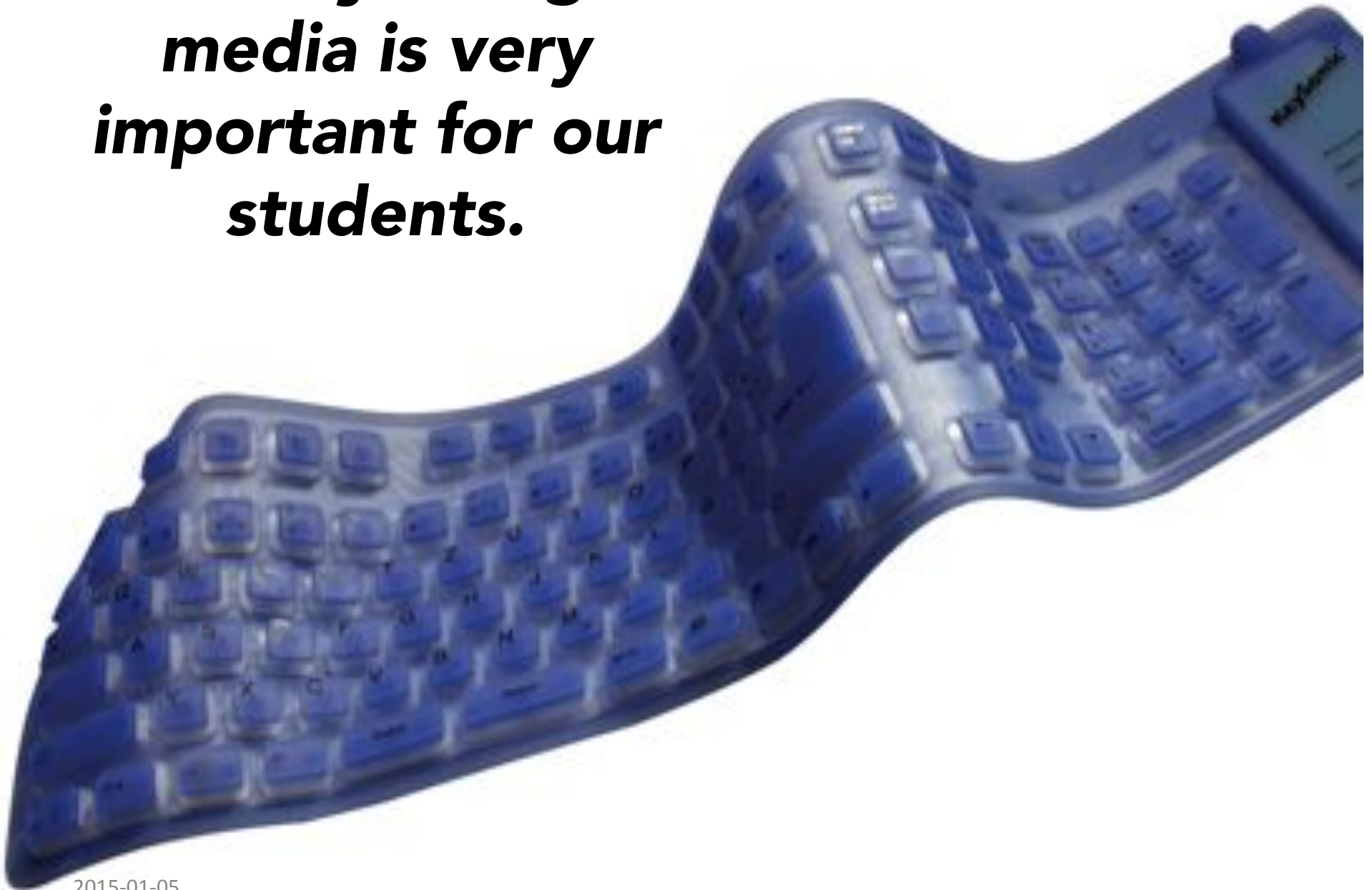
Yesterday's assistive technology is...
today's everyday classroom technology.



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***Flexibility of digital
media is very
important for our
students.***



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What categories of assistive technology and educational technology can be used?



AT tool #1

Text to speech

Text to speech technology means that the text on the screen is read to the student using a synthesized voice.



Research Findings on TTS





"TTS software can improve students' sight reading and decoding abilities."

(Strangman & Dalton, 2005)



“TTS can improve the reading comprehension of students with specific deficits in phonological processing. Students can learn to decode new words when they are highlighted as they are read aloud.”

(Fasting & Halaas Lyster, 2005; Holmes & Silvestri, 2009).

Enables and empowers students by...

- Increasing independence
- Increasing access to interesting and age-appropriate content and opportunities to engage with text
- Allowing student to focus on the meaning of the text
- Reducing fatigue and/or frustration

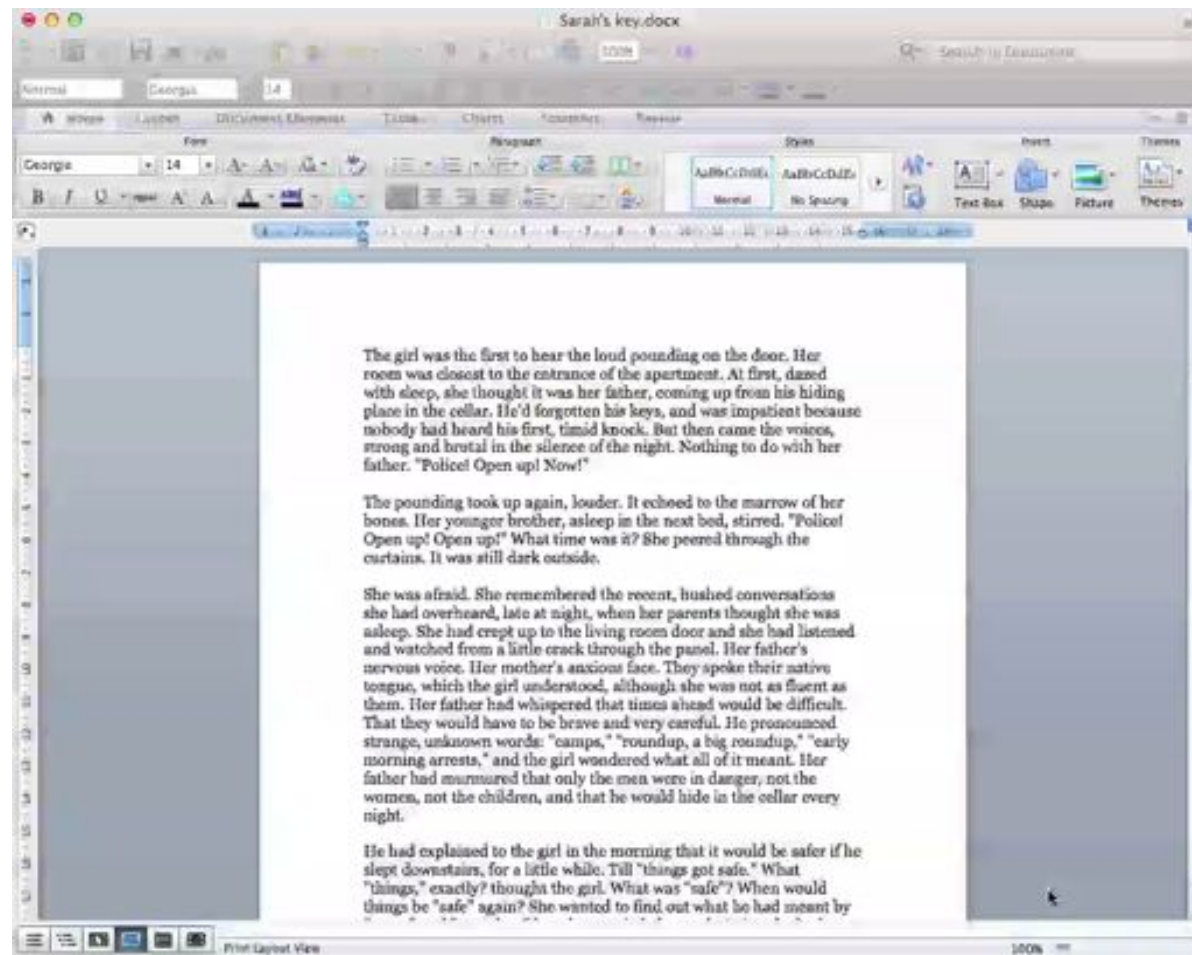
***Consideration
must be given to
students'
listening
comprehension
levels.***

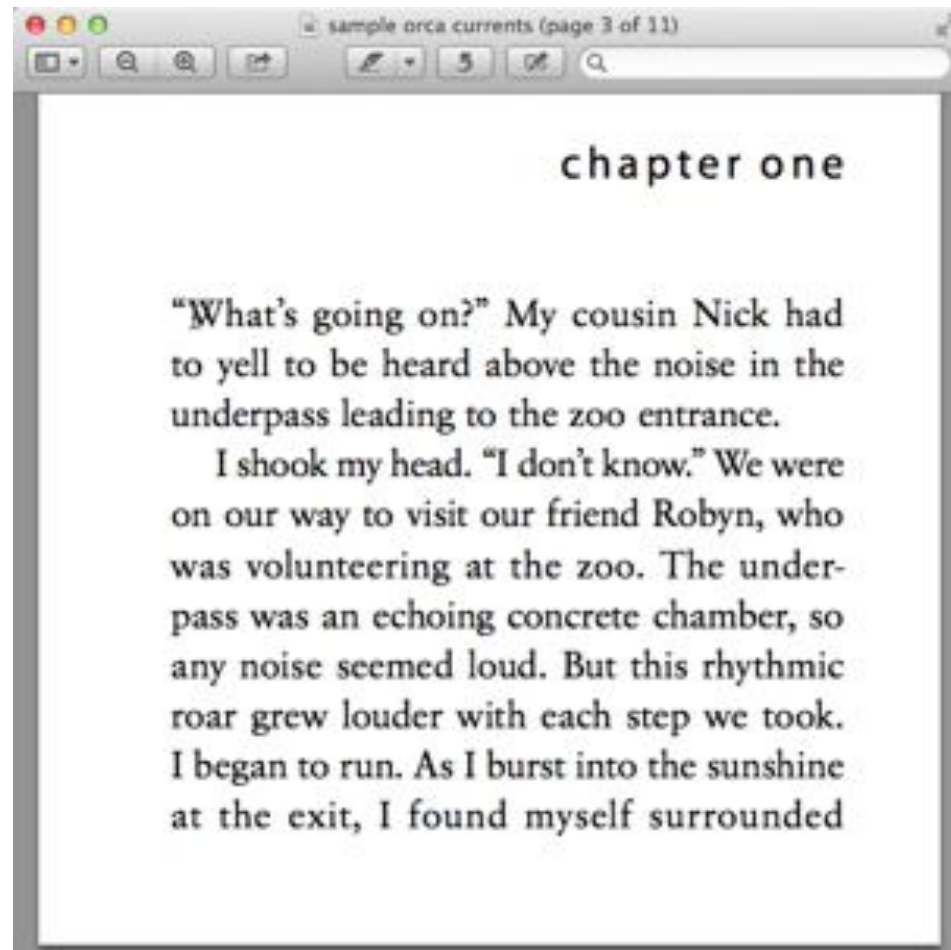
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Text to speech as universal

- Provides a tool for students who may not have an identified disability but may benefit from additional support
- Supports students who may only require text-to-speech for certain words or certain passages of text





Free options for TTS



NaturalReader is an easy-to-use software that converts written text into natural sounding spoken words giving educators, professionals and students a powerful aid and learning tool. NaturalReader can assist ESL students (English as a Second Language) and people with learning difficulties such as dyslexia.

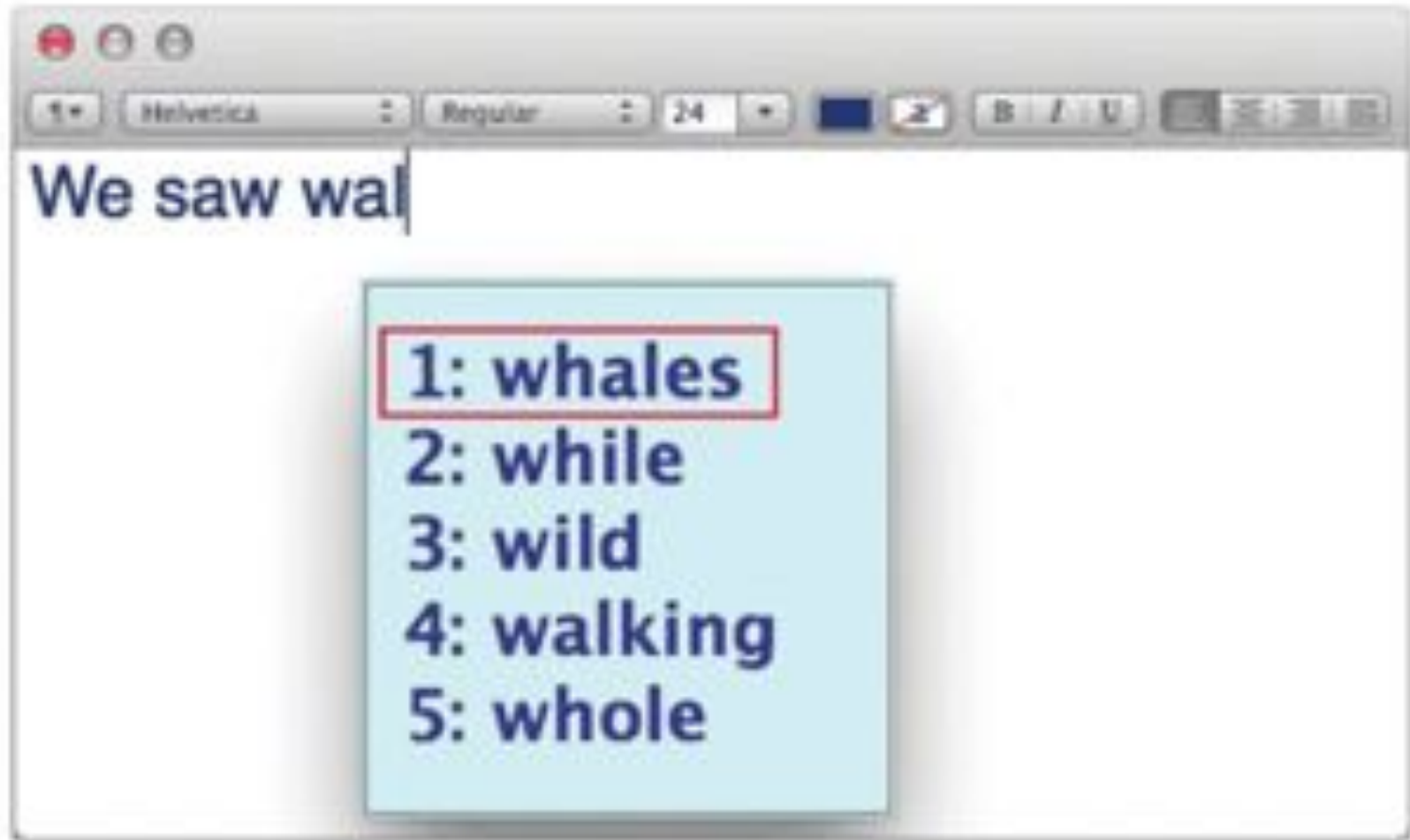


AT tool #2

Reading and writing support tools

- Allow students to become more active and independent readers and writers.
- Includes active reading features such as word prediction, text-to-speech, highlighting, note extraction, vocabulary support, picture dictionaries
- Students begin to learn a support process that is individual to them.

Word prediction



***Helps the student to determine
and choose the correct spelling of a word***

Research Findings on Word Prediction



“25 years of research found that word prediction increases transcription accuracy, word fluency and compositional quality of writing for students with learning and academic difficulties.”

(Peterson-Karlan, 2011)

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pré

Prédicteur

présenter

président

présidents

préférer

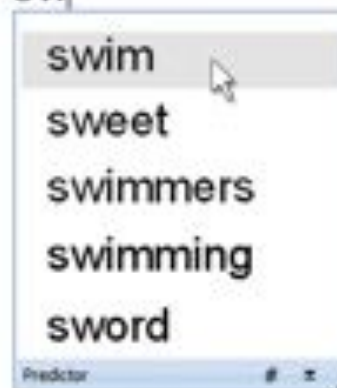


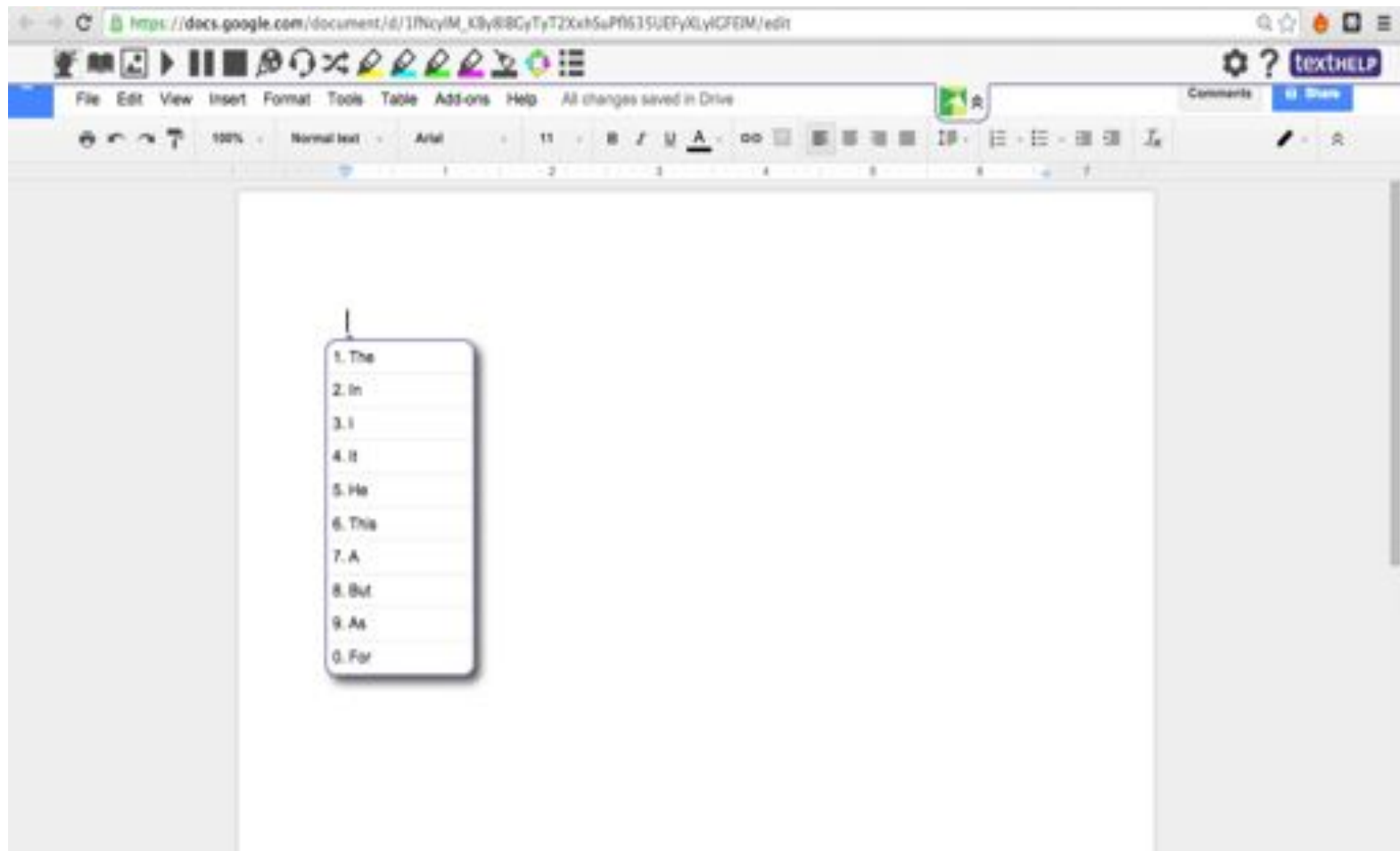
All About Me

My name is Emma. This is my family. I live with my brother. His name is Ben. I have a cat called Catkin.



I go swimming every Saturday. I can sw



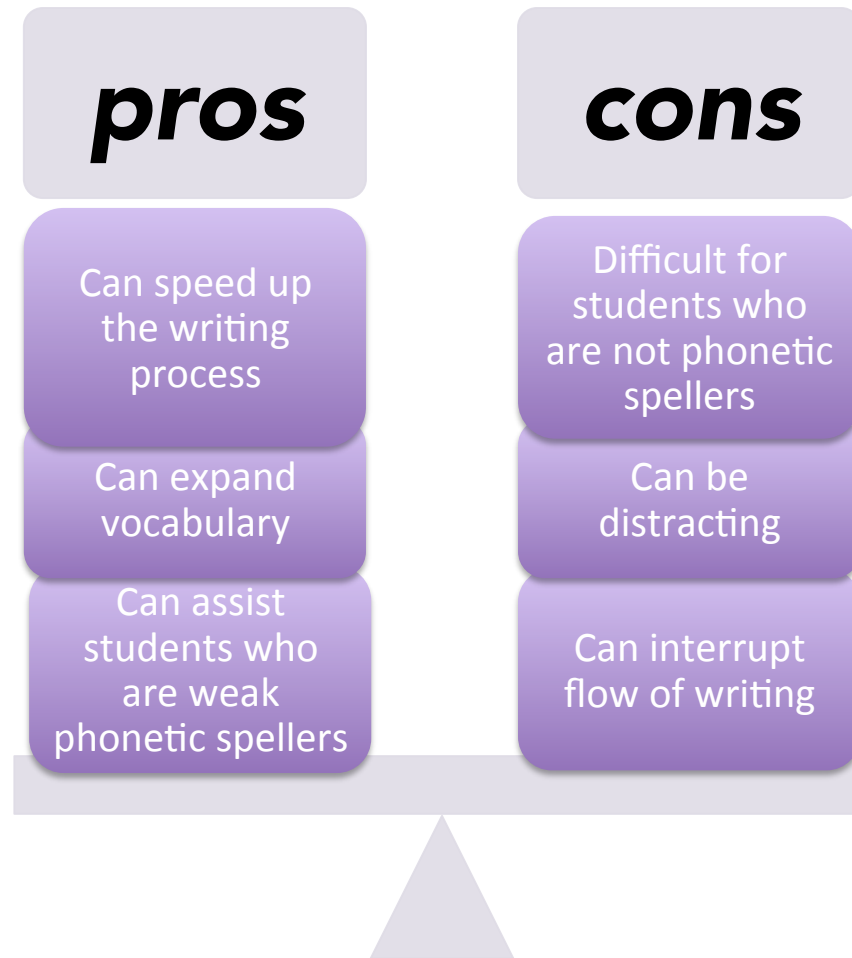


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Word prediction



Annotation

— At the beginning of the story, Rachel says that "when you wake up on your birthday birthday you expect to feel blown, but you don't." She goes on to say that sometimes, no matter how old we are we "need to cry like up (inside) there."

A visible thought while m

A visible record of the thoughts that emerge while making sense of the text.

Make personal
connections

Increase
comprehension

Why use
annotation?

Deeper level of
engagement

“Enter into a
conversation” with
the text

What do good readers do?

Make
predictions

Ask questions

State opinions

Reflect on the
content

Reflect on their
own reading
process

Jason Brill came in late and almost sat to my

right, but luckily I stopped that from happening

at the last second.

I can add a note right here! This is called annotation. ✓ ✗



Next period, I should just sit in the middle of a

Life was going along okay when my mother and father dropped the news. Boom!
Just like that. ●

"We have something wonderful to tell you, Peter," Mom said before dinner. She
was slicing carrots into the salad bowl. I grabbed one.

"What is it?" I asked. I figured maybe my father's been made president of the
company. Or maybe my teacher phoned, saying that even though I don't get the best
grades in the fifth grade, I am definitely the smartest kid in the class.

"We're going to have a baby," Mom said. ●

"We're going to what?" I asked, starting to choke. Dad had to whack me on the
back. Tiny pieces of chewed up carrot flew out of my mouth and hit the counter. Mom
wiped them up with a sponge.

"Have a baby," Dad said.

"You mean you're pregnant?" I asked Mom.

"That's right," she told me, patting her middle, "Almost four months."

"Four months! You've known for four months and you didn't tell me?"

"We wanted to be sure," Dad said.

"It took you four months to be sure?" ●

"I saw the doctor for
February." She reached over
before she could touch me.

I think that...

due in
out of the way

Annotation Marks

 around
tricky
words

UNDERLINE
important ideas

? What questions
do you have?

things that
surprised you !

connects to important idea


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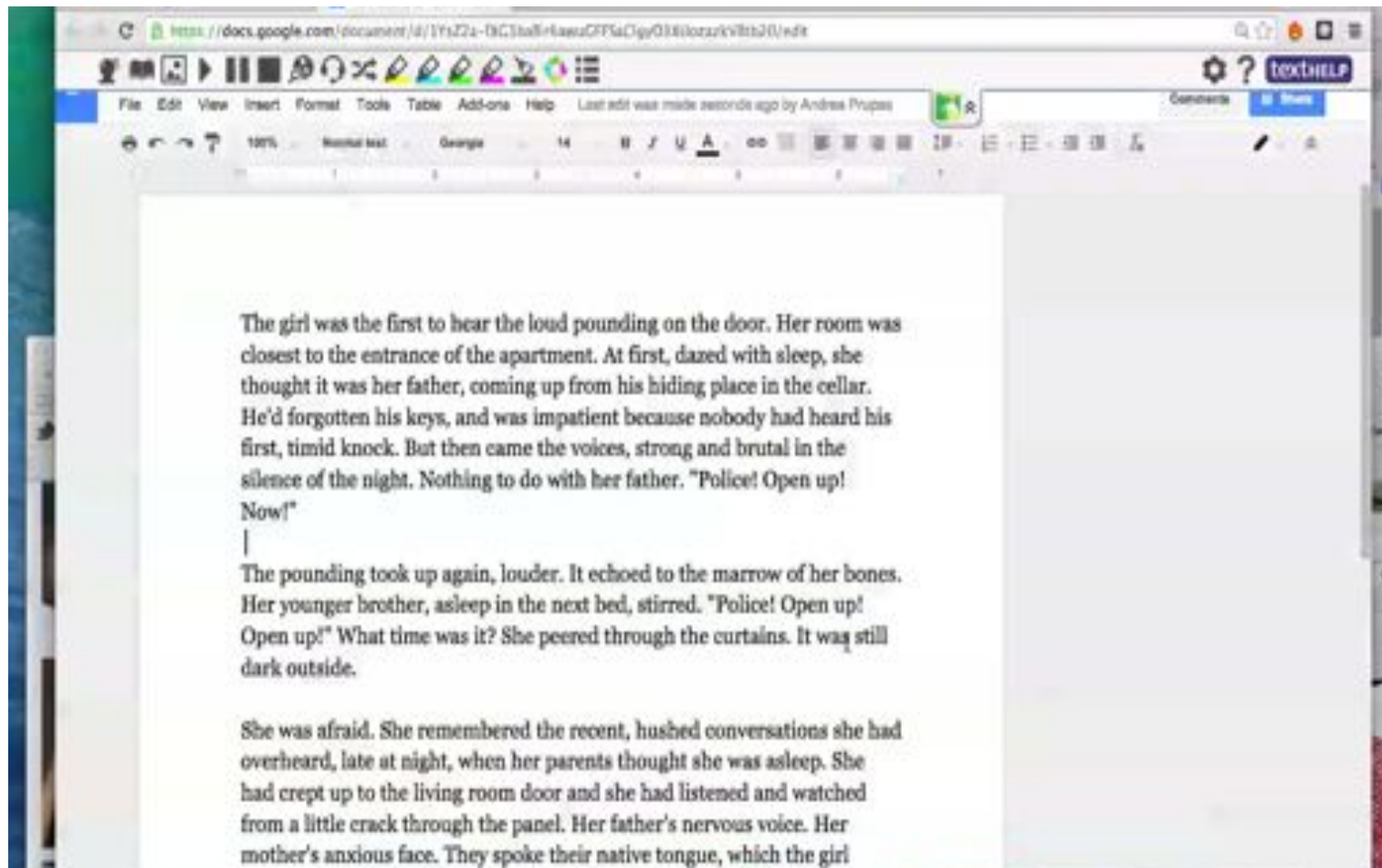
things that
surprised you !

connects to important idea




Free options for annotation

- Preview (free application on a Mac)
- Skitch (free app on Android and iOS)
- Adobe Reader (free on Windows)



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AT tool #3

Audio

- Teachers can deliver verbal instructions and capture lessons for future listening.
- Gives students opportunity to listen to instruction independently, without distraction and at their own pace.
- Students can demonstrate their understanding of learned concepts, create instructional materials and tutorials for peers, conduct interviews.



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Summarizing as a reading strategy:

As you finish reading each paragraph or key section of the passage, **summarize** the main ideas by writing, or speaking and recording in one or two complete sentences.

Main idea one: (write or record here)

Main idea two: (write or record here)

Generating ideas



Before writing, I:

Say everything I know about the topic here in about 5 minutes:



Summarize my 3 main points here:

1.

2.



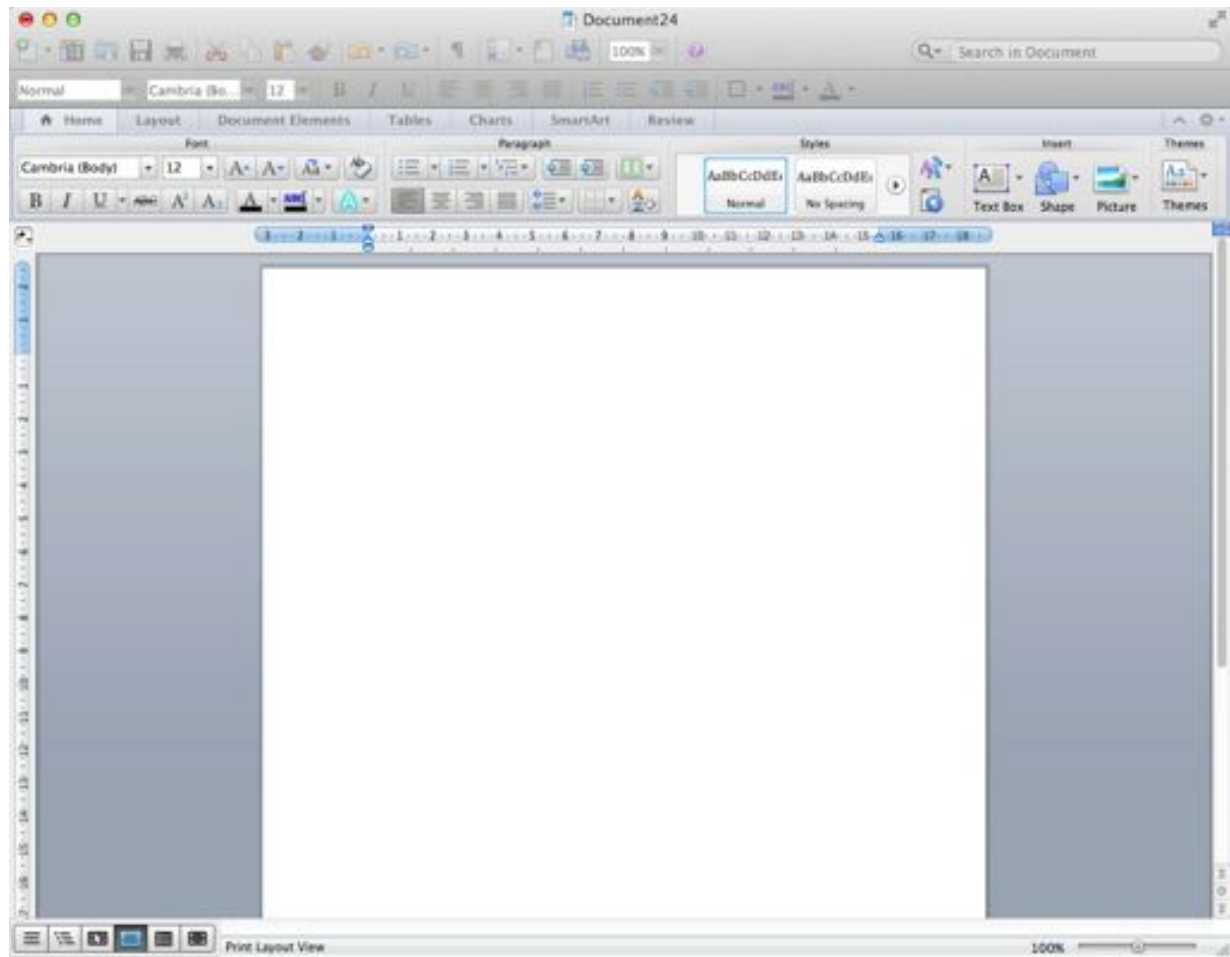
Free options for audio

- Audio notes (within Word)
- Audioboom (app)
- Audacity (software download)

AT tool #4

Speech recognition for writing

- Can be a viable option for students who are better expressing themselves through oral language rather than writing.
- Commitment, matching and scaffolding are essential for success



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Match to:

Task

Environment

Skill

Scaffolding is essential

*Motivating picture
prompts to begin
writing*

*Graphic organizers for
prewriting*

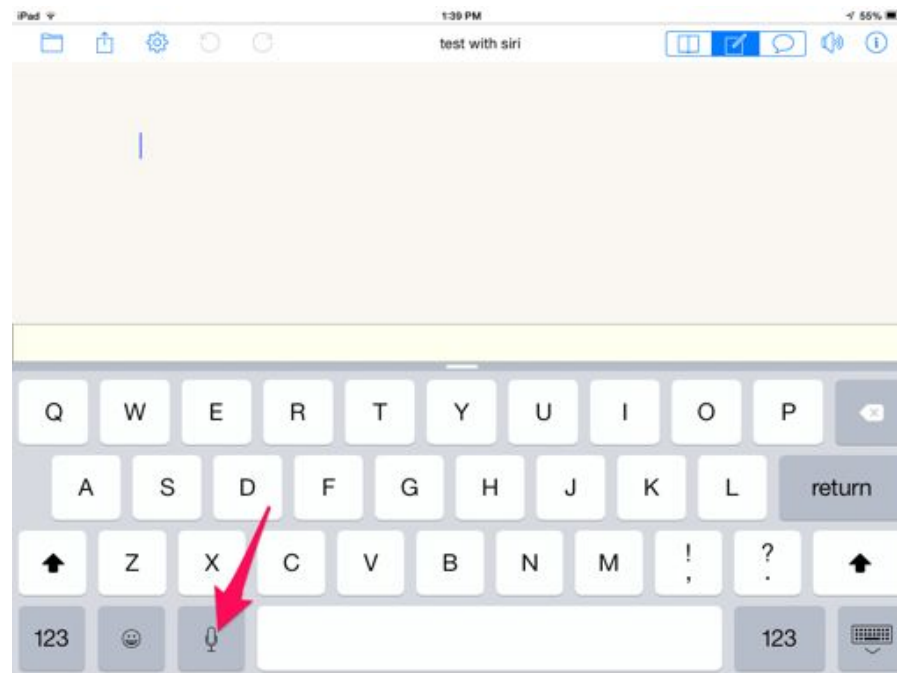
*Use writing
frameworks*

*Give student random
vocabulary word and
have them create a
sentence*



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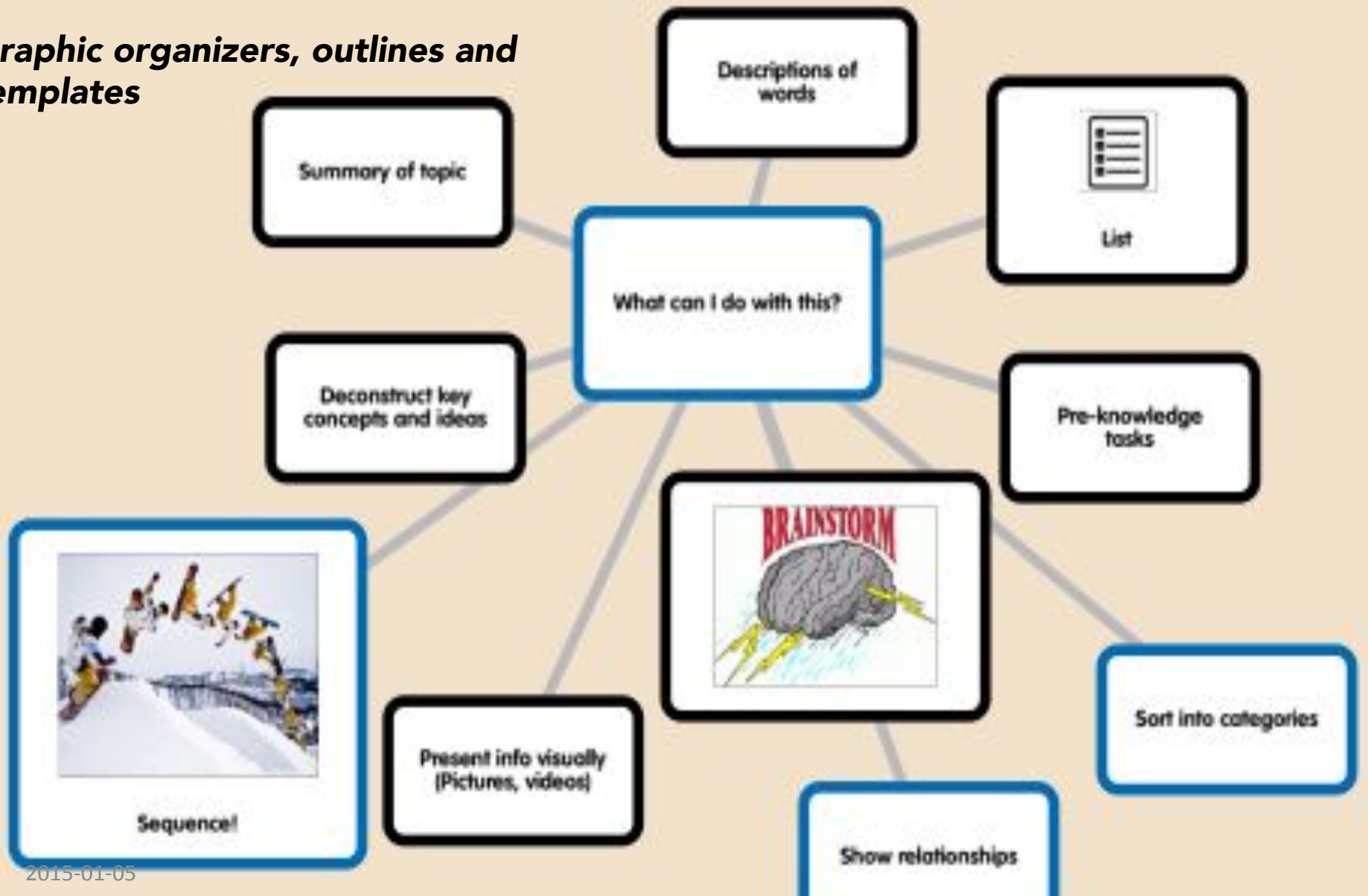
Free options for speech recognition



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AT tool #5

Graphic organizers, outlines and templates



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popplet: Facts About Earth

go full

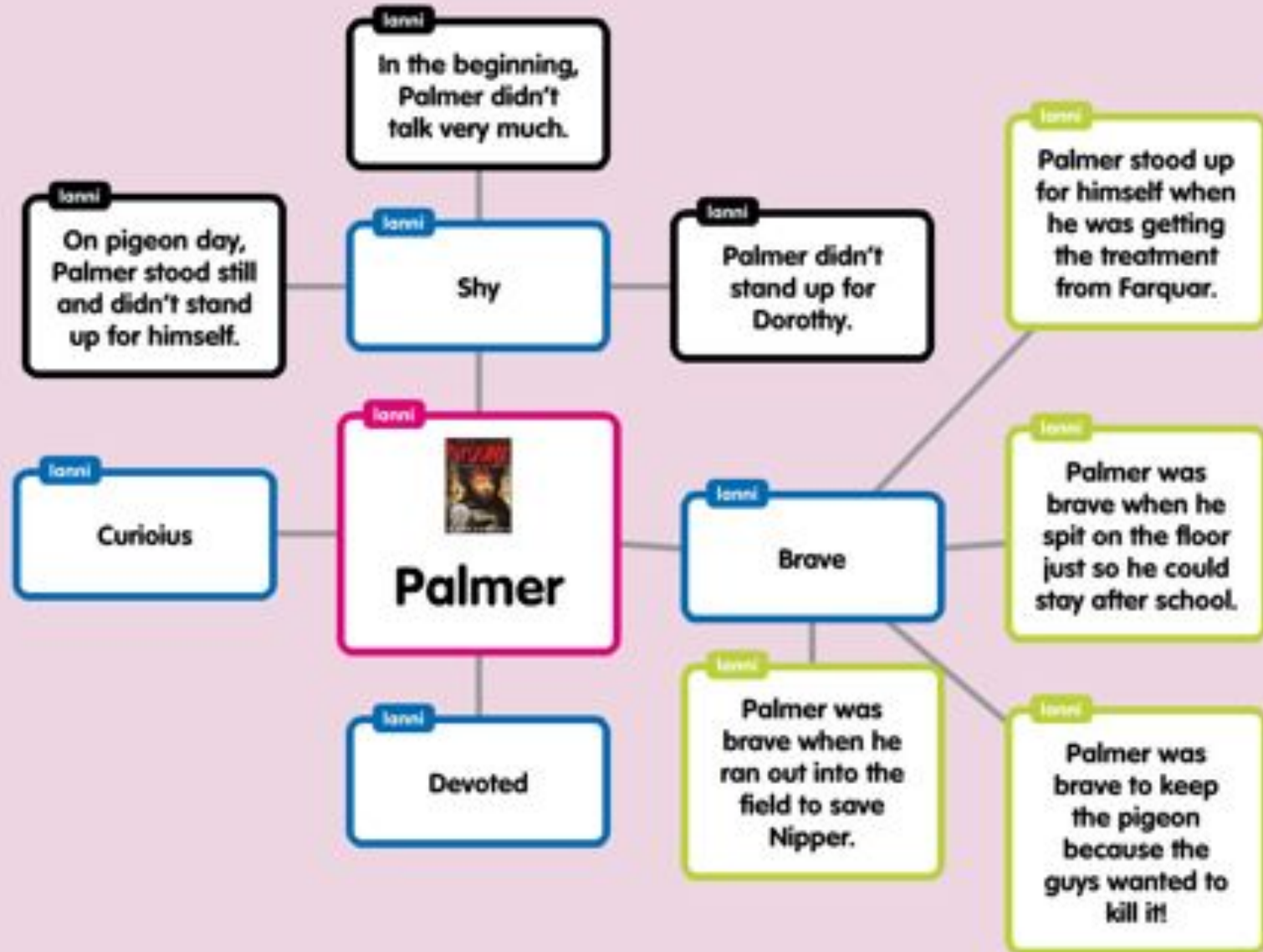
view all

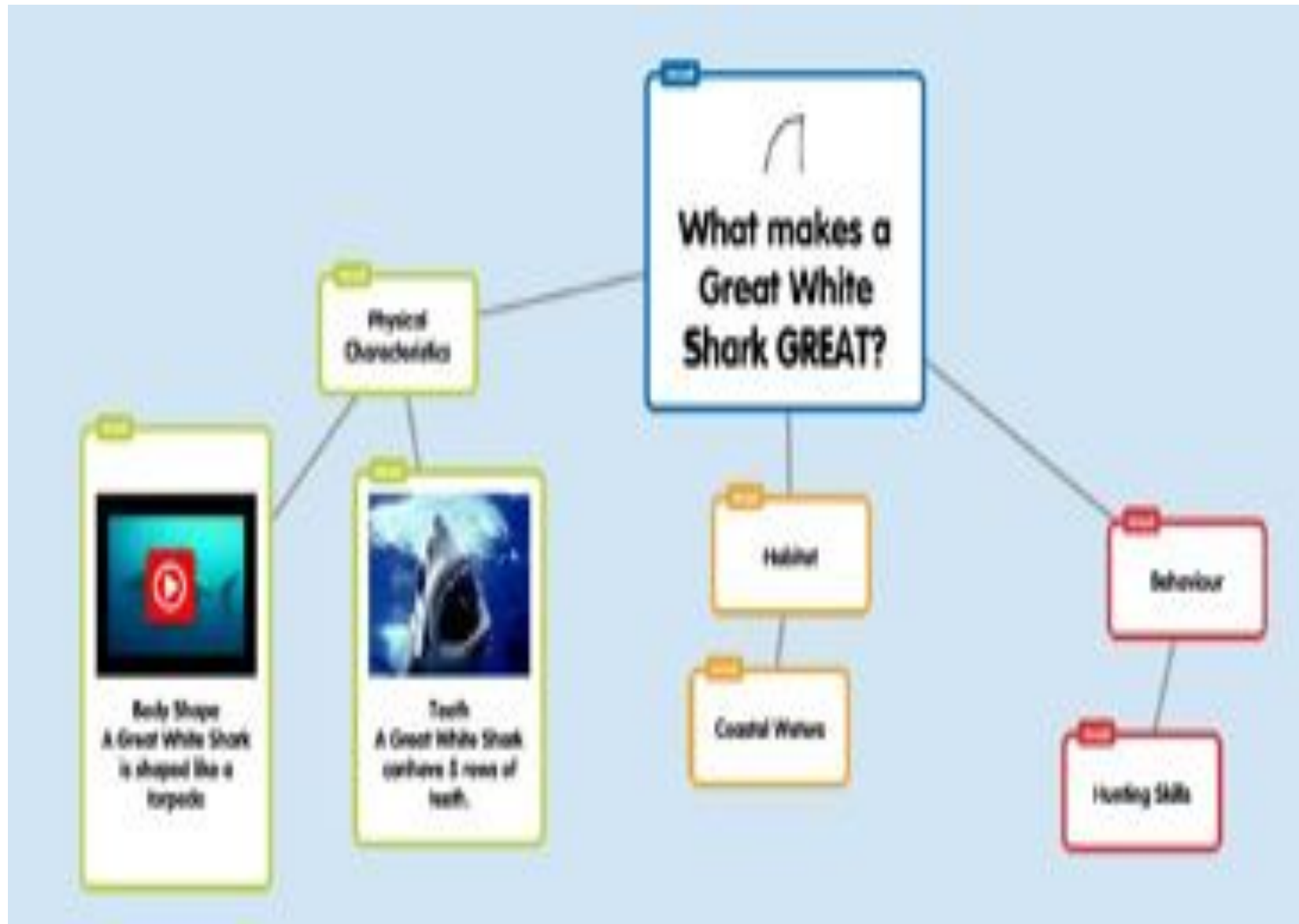
zoom

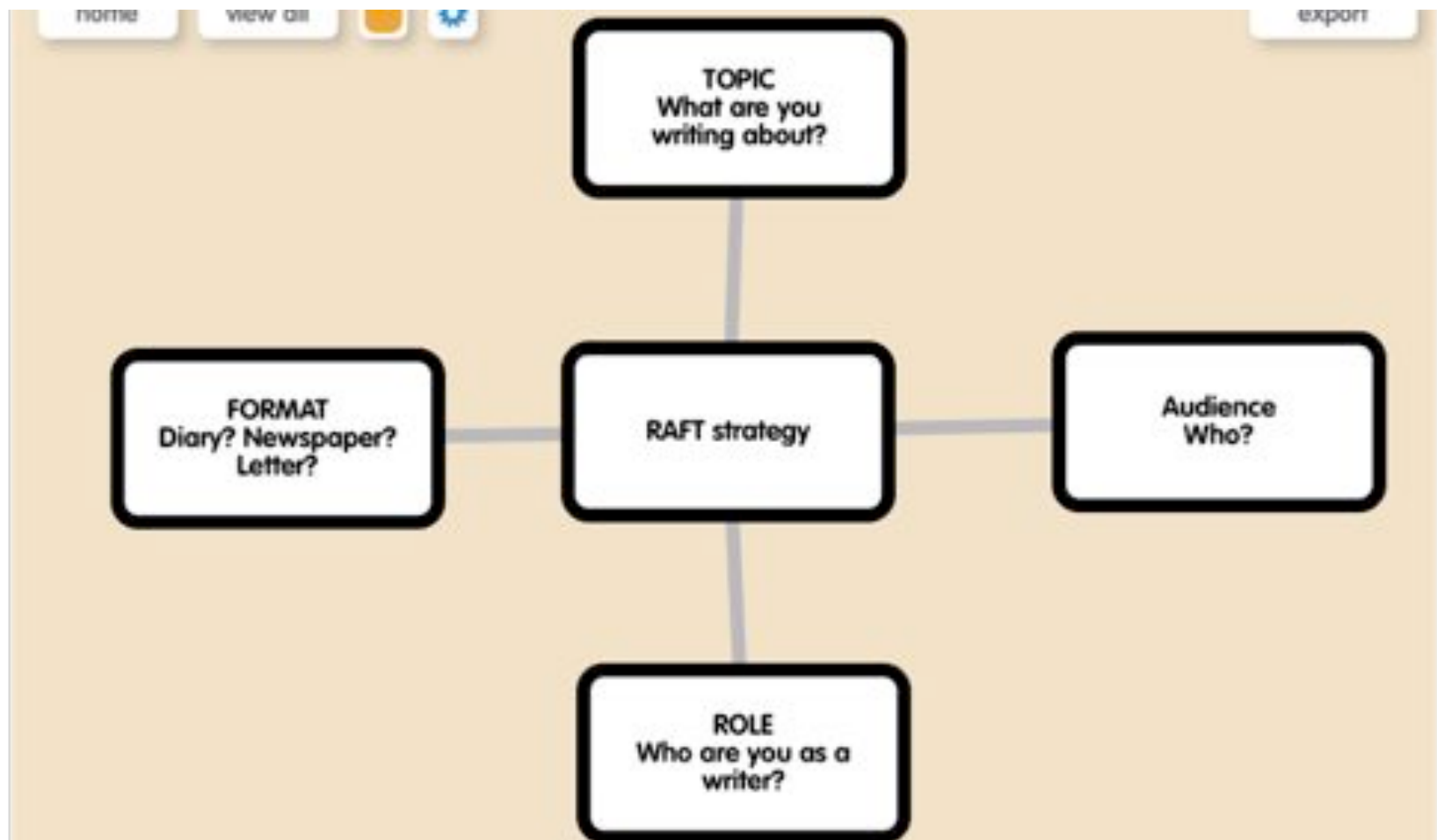


what's popplet?











Free graphic organizer options

- Popplet Lite (iOS app)
- InspirationMaps Lite (iOS app)
- Bubbl.us (web software)

Share your thoughts and ideas

What's in your AT toolbox?

bit.ly/1BTVuYg



Take the pledge!
Focus on one tool.



Thank you!



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