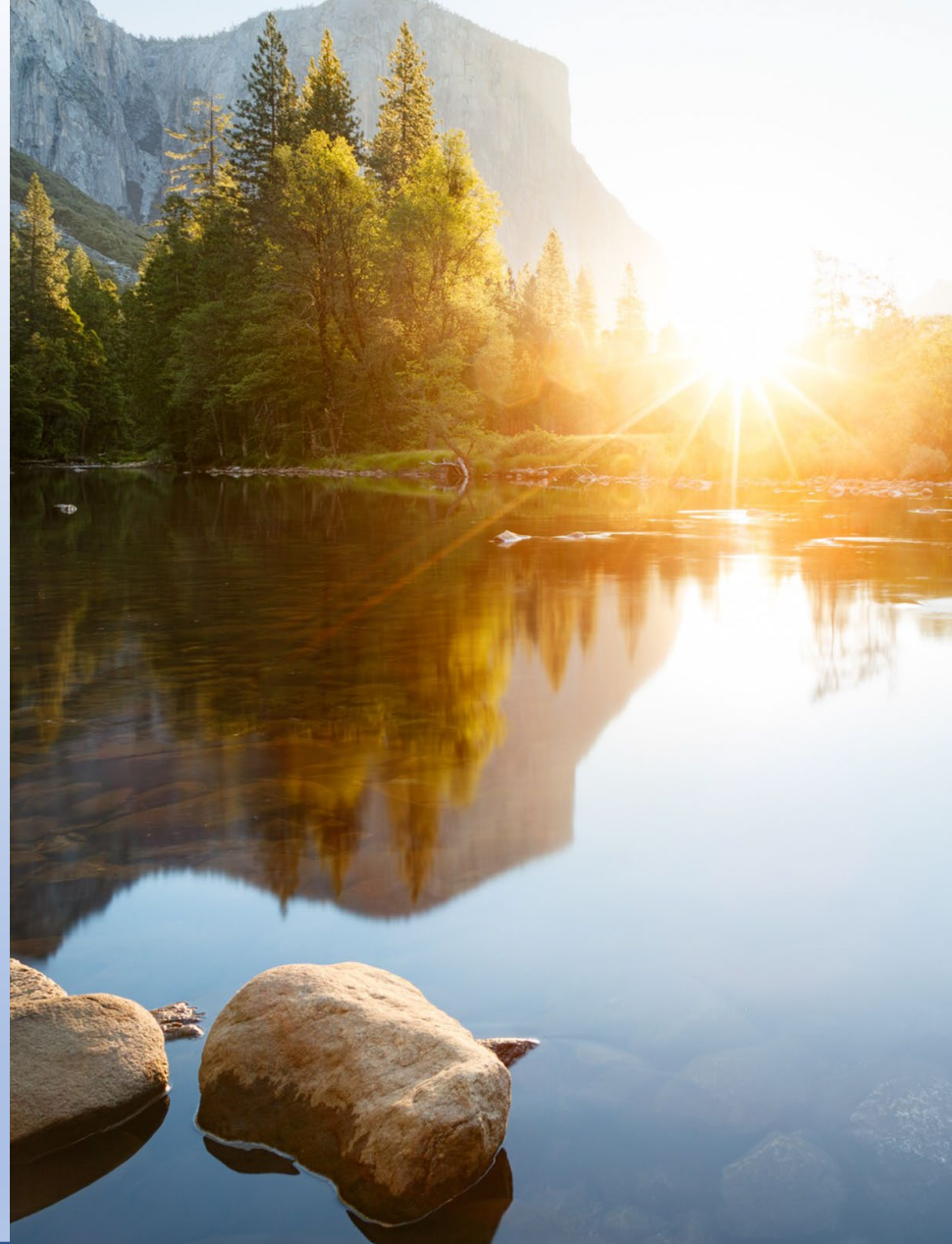


# Presenting Science

Effective Technical Presentations

Kevin Krogstad  
Hydrogeologist  
Montana Department of  
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Engineering Bureau



# Transfer of Knowledge

- Why Are Presentations Important?
- How Do We Transfer Knowledge Efficiently?
- Modern Technology
- Visual Communication
- Perceptual Communication
- Cognitive Communication
- The Hall of Shame- How to Stay Out of It

# Why Are Presentations Important?

- Communication
- Education
- Networking
- Immediacy
- Relevance

# How Do We Transfer Knowledge Efficiently?

- Text

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} \exp\left\{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2\right\}$$

# How Do We Transfer Knowledge Efficiently?

- Text

$$(C_N)_F = \left[ 1 + \frac{R}{S + R} \right] \left[ \frac{16 \left( \frac{S}{d} \right)^2}{1 + \sqrt{1 + \left( \frac{2L_F}{C_R + C_T} \right)^2}} \right]$$
$$\bar{X}_F = X_B + \frac{X_R (C_R + 2C_T)}{3 (C_R + C_T)} + \frac{1}{6} \left[ C_R + C_T - \frac{C_R C_T}{(C_R + C_T)} \right]$$

# How Do We Transfer Knowledge Efficiently?

- Text

## AXIOMATA, SIVE LEGES MOTUS

[Leges solæ descripta sunt, commentariis prætermisissis.]

### Lex I

Corpus omne perseverare in statu suo quiescendi vel movendi uniformiter in directum, nisi quatenus illud a viribus impressis cogitur statum suum mutare.

### Lex II

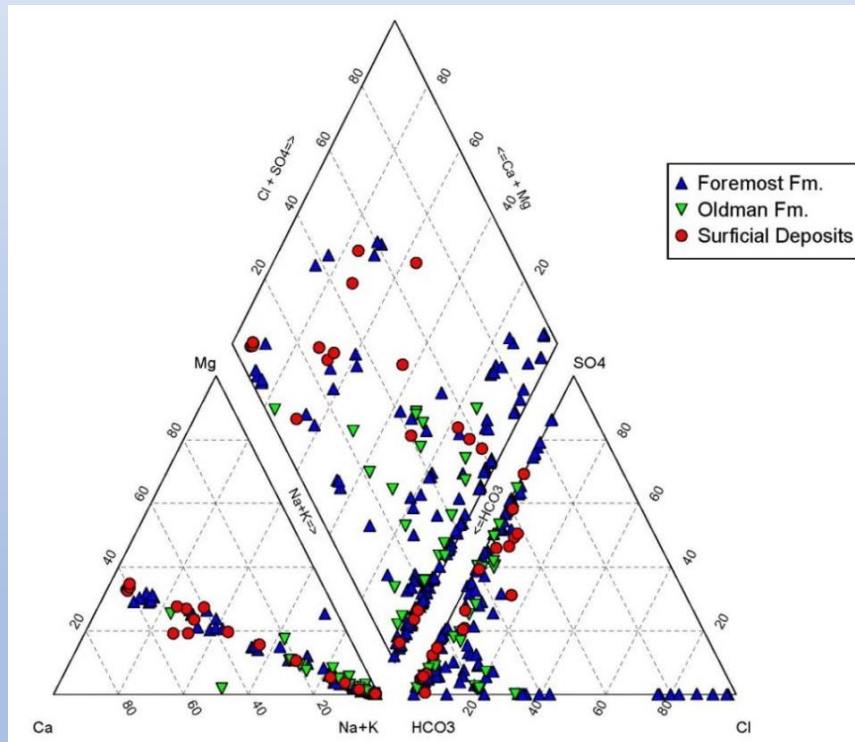
Mutationem motus proportionalem esse vi motrici impressæ, & fieri secundum lineam rectam qua vis illa imprimitur.

### Lex III

Actioni contrariam semper & æqualem esse reactionem: sive corporum duorum actiones in se mutuo semper esse æquales & in partes contrarias dirigi.

# How Do We Transfer Knowledge Efficiently?

- Text
- Graphics



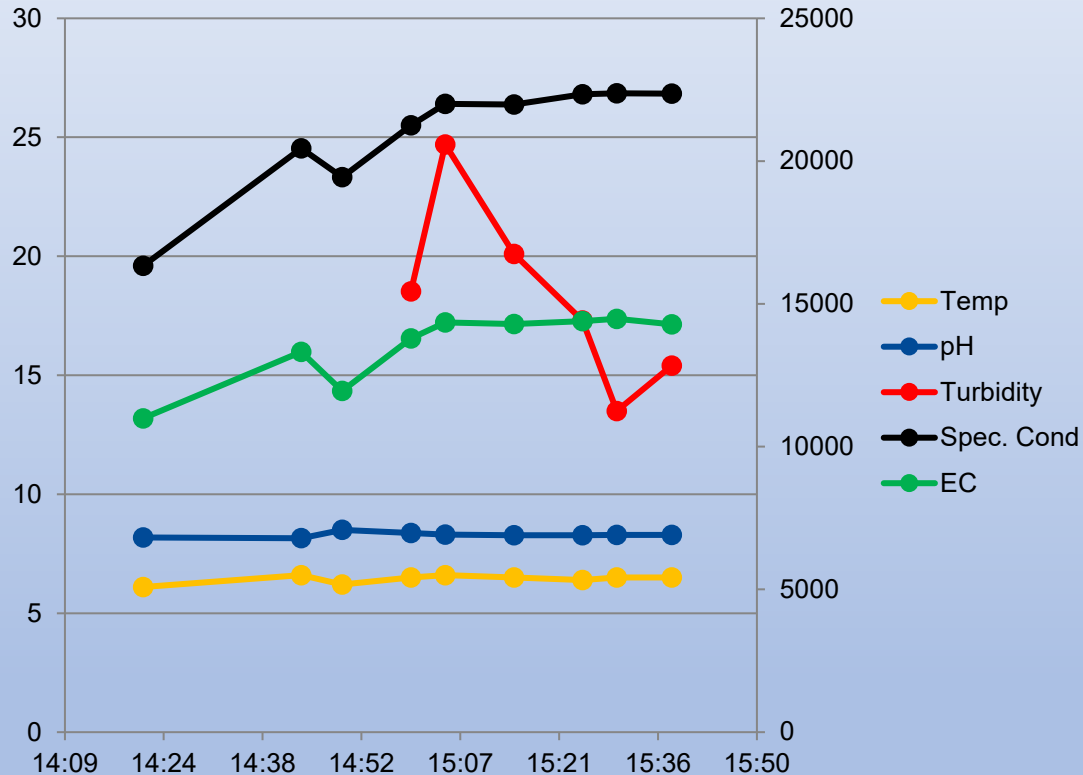
# How Do We Transfer Knowledge Efficiently?

- Text
- Graphics
- Tables

Chemical	CAS	PRG	R-SRL	NR-SRL	Tapwater	SSL	DeMinimis
(m)3-Nitrotoluene	99-08-1	1200	1200	12000	730	0.6	
(o)2-Nitrotoluene	88-72-2	2.9	2.9	13	0.31	0.00025	
(p)4-Nitrotoluene	99-99-0	30	30	110	4.2	0.0034	
1,3,5-Trinitrobenzene	99-35-4	2200	2200	27000	1100	2.6	
1,3-Dinitrobenzene	99-65-0	6.1	6.1	62	3.7	0.0023	1
2,4,6-Trinitrotoluene	118-96-7	19	19	79	2.2	0.0087	
2,4-Dinitrotoluene	121-14-2	120	1.6	5.5	0.22	0.0002	0.1
2,6-Dinitrotoluene	606-20-2	61	61	620	37	0.034	0.1
2-Amino-4,6-Dinitrotoluene	35572-78-2	150	150	2000	73	0.029	
4-Amino-2,6-Dinitrotoluene	19406-51-0	150	150	1900	73	0.029	
HMX	2691-51-0	3800	3800	49000	1800	7.1	
Nitrobenzene	98-95-3	31	4.4	22	0.12	0.000071	0.1
Nitroglycerin	55-63-0	35	6.1	62	3.7	0.0017	1
RDX	121-82-4	5.5	5.5	24	0.61	0.00036	
Tetryl	479-45-8	240	240	2500	150	0.65	

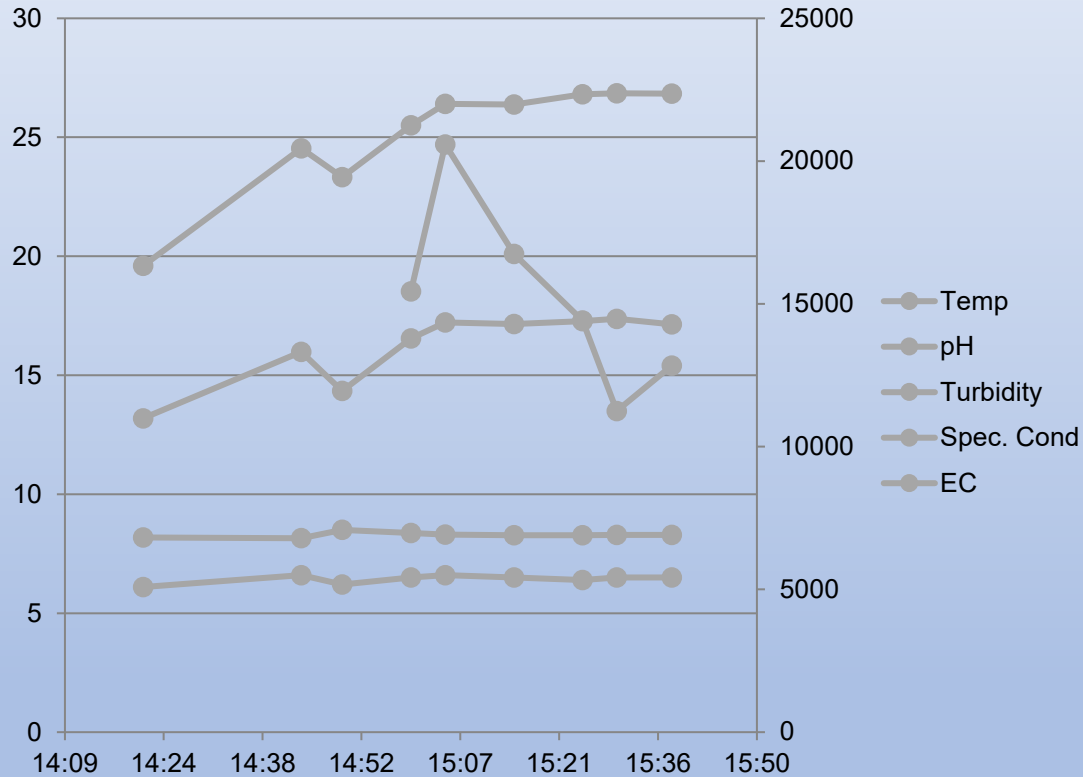
# How Do We Transfer Knowledge Efficiently?

- Text
- Graphics
- Tables
- Charts



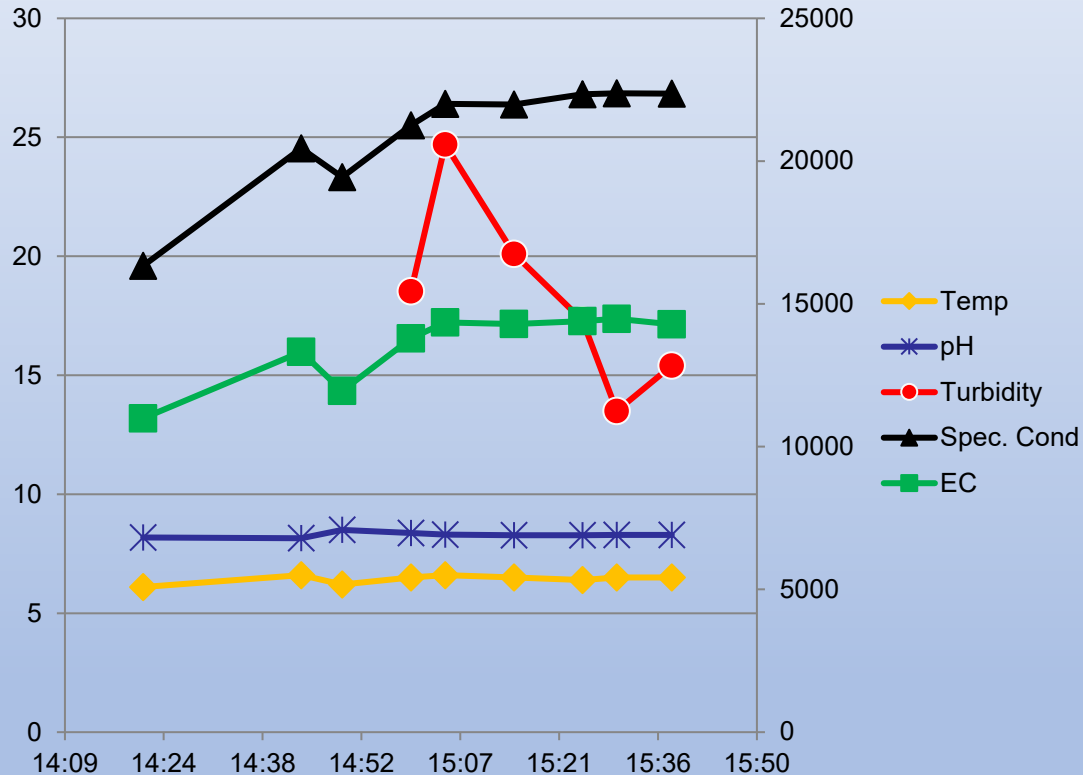
# How Do We Transfer Knowledge Efficiently?

- Text
- Graphics
- Tables
- Charts



# How Do We Transfer Knowledge Efficiently?

- Text
- Graphics
- Tables
- Charts



# Modern Technology

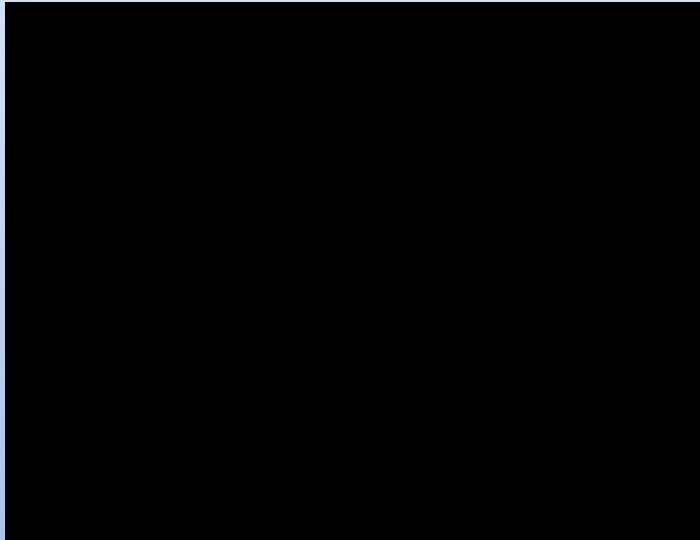


# Visual Communication

- Create Slides to be Seen.
- Use Appropriate Font Sizes.
- Place Similar Information in Identical Locations on Each Slide.
- Never Use Color Alone to Classify Information.
- Use Achromatic Highlighting as a Visual Cue.
- Avoid Extremes in Contrast. Never Follow a Dark Slide with a Bright One.

# Perceptual Communication

- Declutter Your Slides.



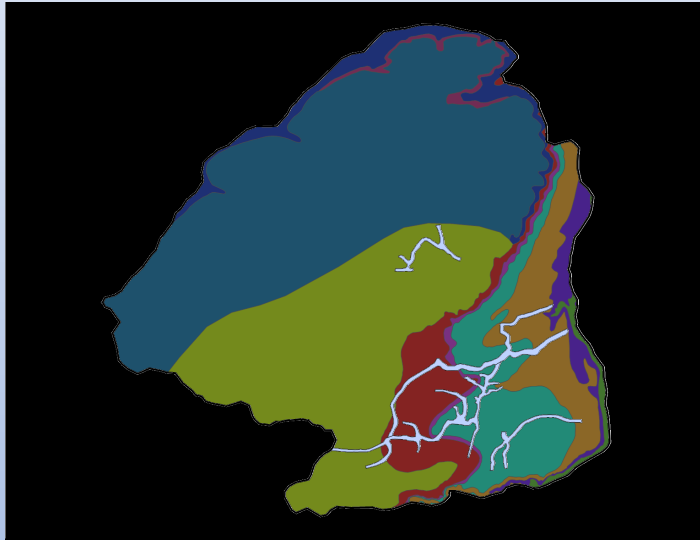
# Perceptual Communication

- Declutter Your Slides.



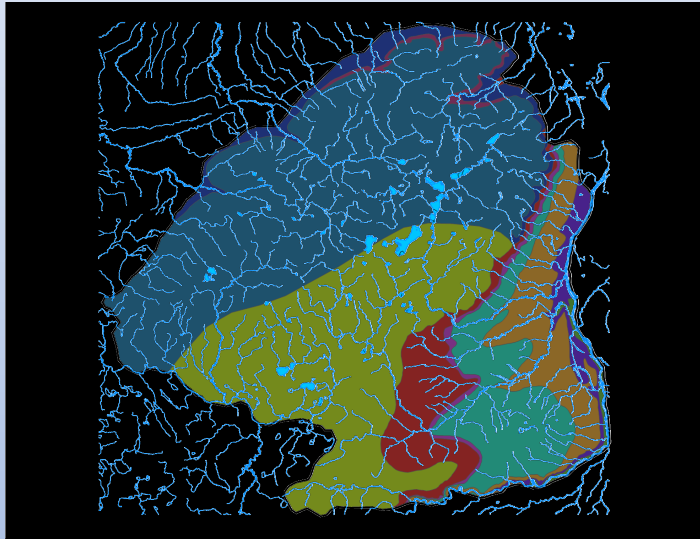
# Perceptual Communication

- Declutter Your Slides.



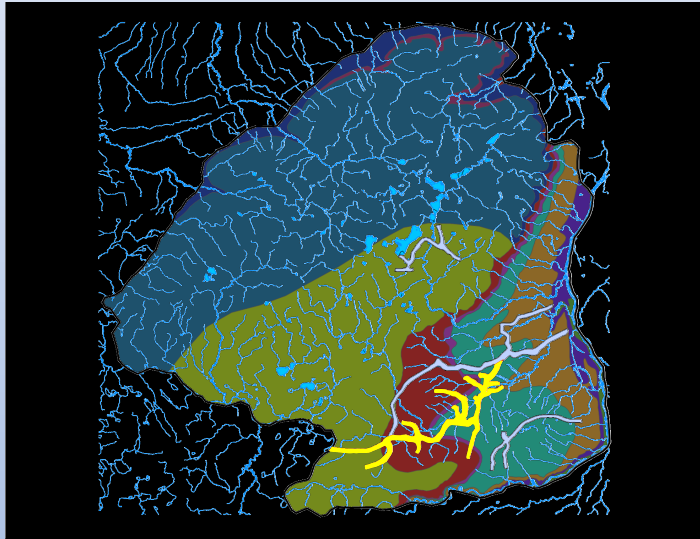
# Perceptual Communication

- Declutter Your Slides.



# Perceptual Communication

- Declutter Your Slides.
- Highlight Subtle Features.



# Perceptual Communication

- Declutter Your Slides.
- Highlight Subtle Features.
- Use the Appropriate Level of Representation for the Task.



# Cognitive Communication

- Keep Text to a Minimum.
- Use Simple, Active, Positive Sentences.
- Repeat New Material.
- Relate New Material to Existing Cognitive Structures.

# The Hall of Shame- How to Stay Out of It.

- Know Your Audience.
- Never Apologize for a Slide.
- Never Read Your Presentation.
- Keep It Focused.
- Don't Use Too Many Slides.
- Grammar is Important.
- Laser Pointers Can Become a Crutch. Consider Doing Without.
- Consider Handouts.
- Speak Up.
- Dress Appropriately.
- Be Early and Finish On Time.
- Do Your Part as a Member of the Audience.

**Thank you for your attention!**



# Connect with us!

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