



Teaching Up the Ladder: Strategies for Meeting Your Trainees' Clinical Learning Needs at Every Level

Part 1



Introductions

Introduction

- [insert your name, title and qualifications here]

Preparation

Questions

Techniques

Conclusion



Objectives

Introduction

- Characterize methods used by exceptional clinical teachers to effectively gauge and teach to a learner's level.

Preparation

Questions

Techniques

Conclusion

- Discuss multi-level teaching techniques, including appropriate and safe use of questioning as a teaching tool.
- Practice concrete strategies for engaging varying levels of learners in the same clinical teaching encounter.



Roadmap

Introduction

Preparation

Questions

Techniques

Conclusion

Part 1

- Introduction
- Preparation
 - Development of excellent multi-level teachers
 - Characteristics of excellent clinical teachers
- Questioning as a teaching tool
 - Bloom's Taxonomy
 - 4-Quadrant Approach
 - Application: Small group



Roadmap

Introduction

Preparation

Questions

Techniques

Conclusion

Part 2

- Techniques
 - Literature review
 - Multilevel teaching techniques
 - Application: Role-play activity
- Conclusion
 - Large group discussion/Q&A



Learning Cycle

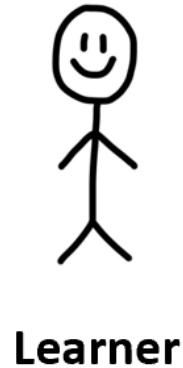
Introduction

Preparation

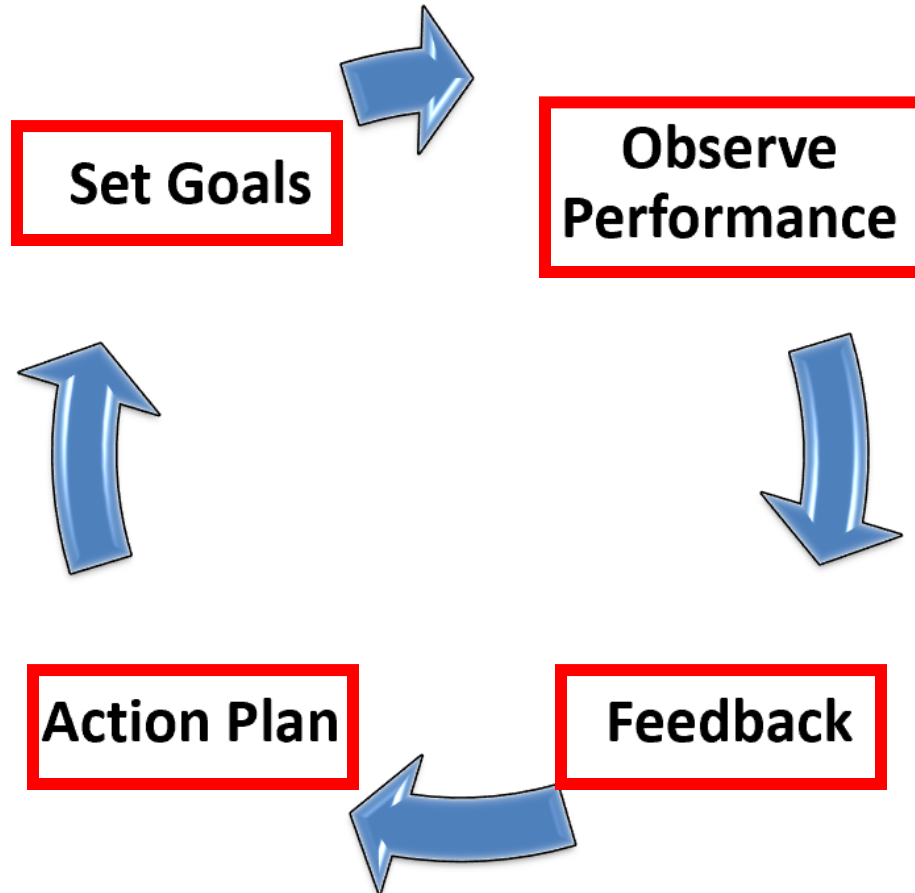
Questions

Techniques

Conclusion



Learner



Attending



Learning Cycle

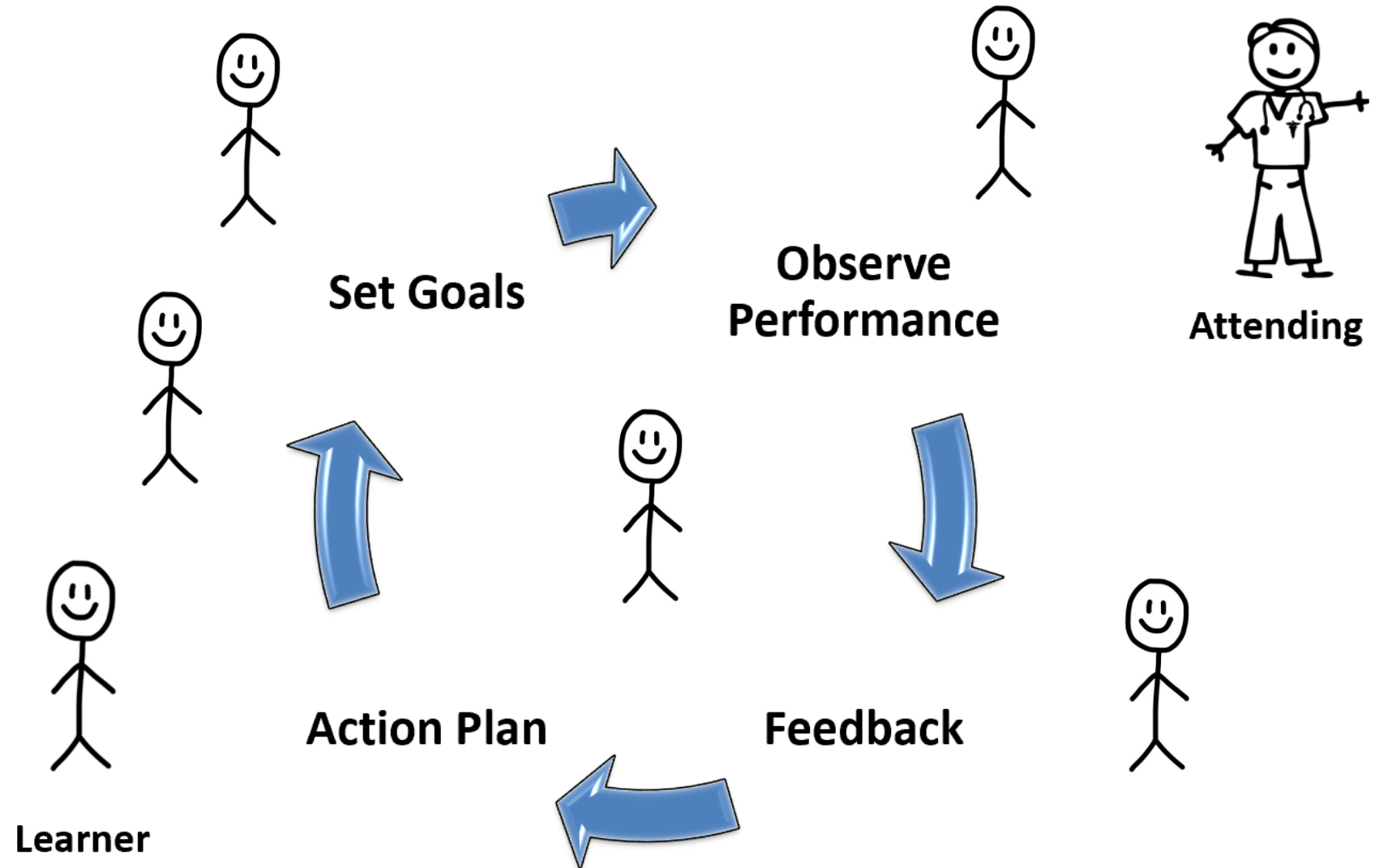
Introduction

Preparation

Questions

Techniques

Conclusion





Introduction

Preparation

Questions

Techniques

Conclusion



**Clinical learning environments are
extraordinarily complex!**



Spoiler Alert!

Introduction

- It isn't possible to meet every learner's needs simultaneously....

Preparation

- ...but there are some tactics to best engage the learning team, when there are multiple levels of learners present, if you do your homework!

Questions

Techniques

Conclusion





PREPARATION:
How do we set
ourselves up for
success?



Teacher Homework

Introduction

Preparation

Questions

Techniques

Conclusion

- Attending Preparation Strategies
 - Trainee-specific
 - Disease-specific
 - Patient-specific
 - Mental preparation



Teacher Homework (Trainee-Specific)

Introduction

Preparation

Questions

Techniques

Conclusion

- Get to know your learners
 - Past experience
 - Areas where learners have done well
 - Areas where learners need some work
 - Get to know your learners as people, too...
- Know what is expected of your learners
 - Course/rotation objectives
- Understand your role in your learners' education



Teacher Homework (Trainee-Specific)

Introduction

Preparation

Questions

Techniques

Conclusion





Goal Setting

Introduction

Preparation

Questions

Techniques

Conclusion

- Ask your learner to set his/her own goals
- Help your learner to refine his/her goals (negotiation)
- Add your own goals for the learner
- It's important to have SMART goals!
 - Specific
 - Measurable
 - Attainable
 - Relevant
 - Time-framed



Teacher Homework (Disease-Specific)

Introduction

Preparation

Questions

Techniques

Conclusion

- Identify diagnoses, procedures, processes with which your learners (and you!) feel least comfortable and review these
- Create teaching points or teaching scripts



Teacher Homework (Trainee & Disease-Specific)

Introduction

Preparation

Questions

Techniques

Conclusion

Rounding Sheet

Name:

Phone Number:

Which topics are you interested in learning about? (Feel free to add another topic to the list):

- | | |
|--|---|
| <input type="checkbox"/> Hyponatremia | <input type="checkbox"/> Peripheral smears |
| <input type="checkbox"/> Hypercalcemia | <input type="checkbox"/> Hemolytic anemia |
| <input type="checkbox"/> Dermatology | <input type="checkbox"/> Coagulation cascade |
| <input type="checkbox"/> Nephrotic syndrome | <input type="checkbox"/> HIT |
| <input type="checkbox"/> Glomerulonephritis | <input type="checkbox"/> EKGs |
| <input type="checkbox"/> Vasculitis | <input type="checkbox"/> Cardiac pre-op risk stratification |
| <input type="checkbox"/> Rheumatology primer | <input type="checkbox"/> Pulmonary HTN |
| <input type="checkbox"/> Bacteremia Basics | <input type="checkbox"/> COPD |
| <input type="checkbox"/> Inpatient Diabetes Management | <input type="checkbox"/> Evidence Based Medicine (articles) |
| <input type="checkbox"/> Hypertension | <input type="checkbox"/> Wildcard |
| <input type="checkbox"/> DVTs/anti-coagulation | <input type="checkbox"/> Other (Pick topic) |

Main goals you want to accomplish during rotation:

☐

☐

☐



Teacher Homework (Patient-Specific)

Introduction

Preparation

Questions

Techniques

Conclusion

- Review notes, labs, studies, EMR (and possibly evaluate patients directly)
- Along with knowledge of learning goals, decide on areas of educational focus and prepare teaching points



Teacher Homework (Mental Preparation)

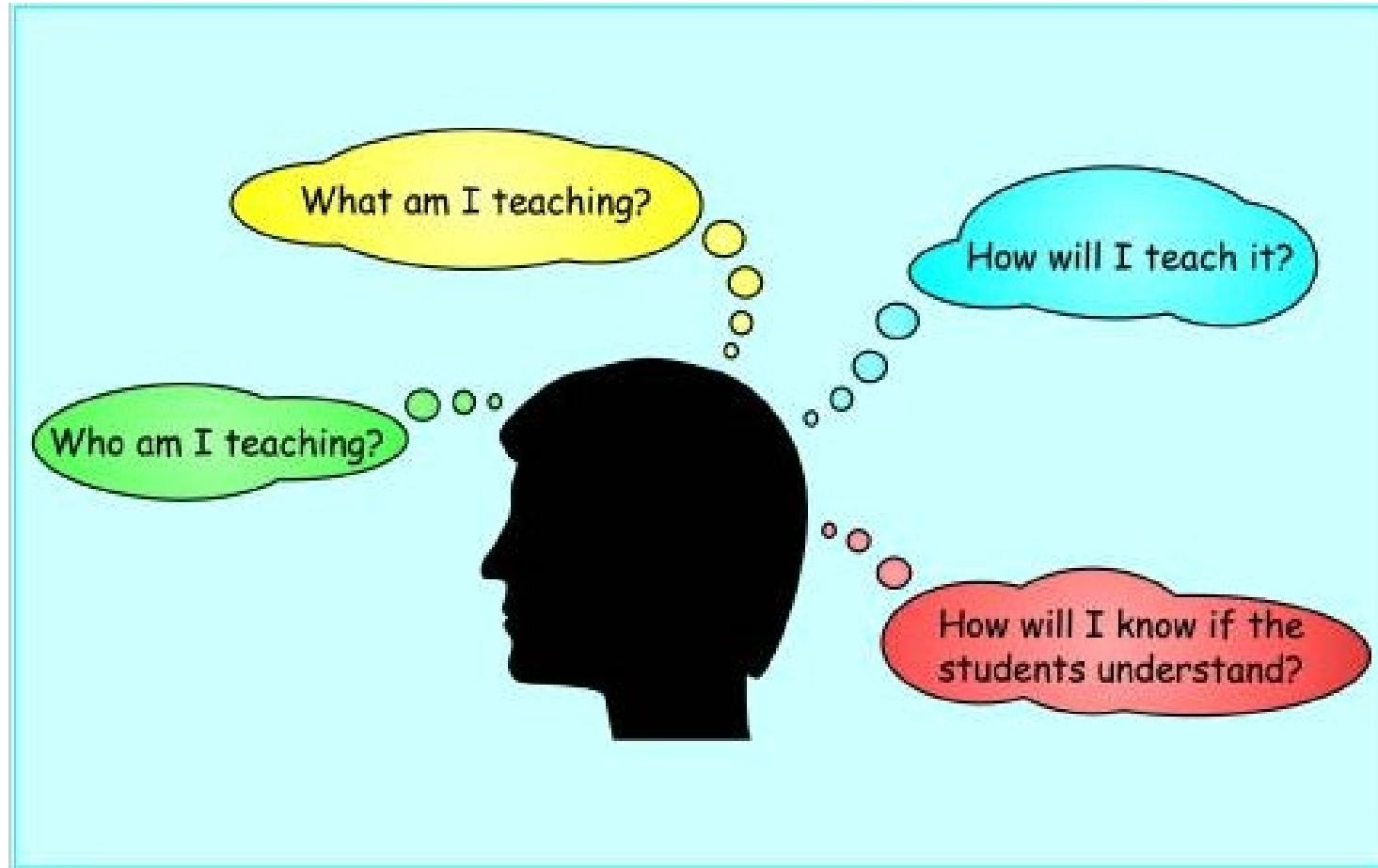
Introduction

Preparation

Questions

Techniques

Conclusion



Clinical teaching is not as opportunistic as it initially appears...



Excellent Clinical Teachers

Introduction

- Deliberately structure and sequence learning opportunities for different level learners

Preparation

- Sequence clinical learning opportunities by adjusting case content, managing case complexity and tailoring expectations for different learners

Questions

- Strategically select learning activities to promote individual learner progression along a developmental trajectory

Techniques

- Learner growth and patient safety considerations drive teacher attention to learner developmental levels and selection of learning activities

Conclusion



Homework

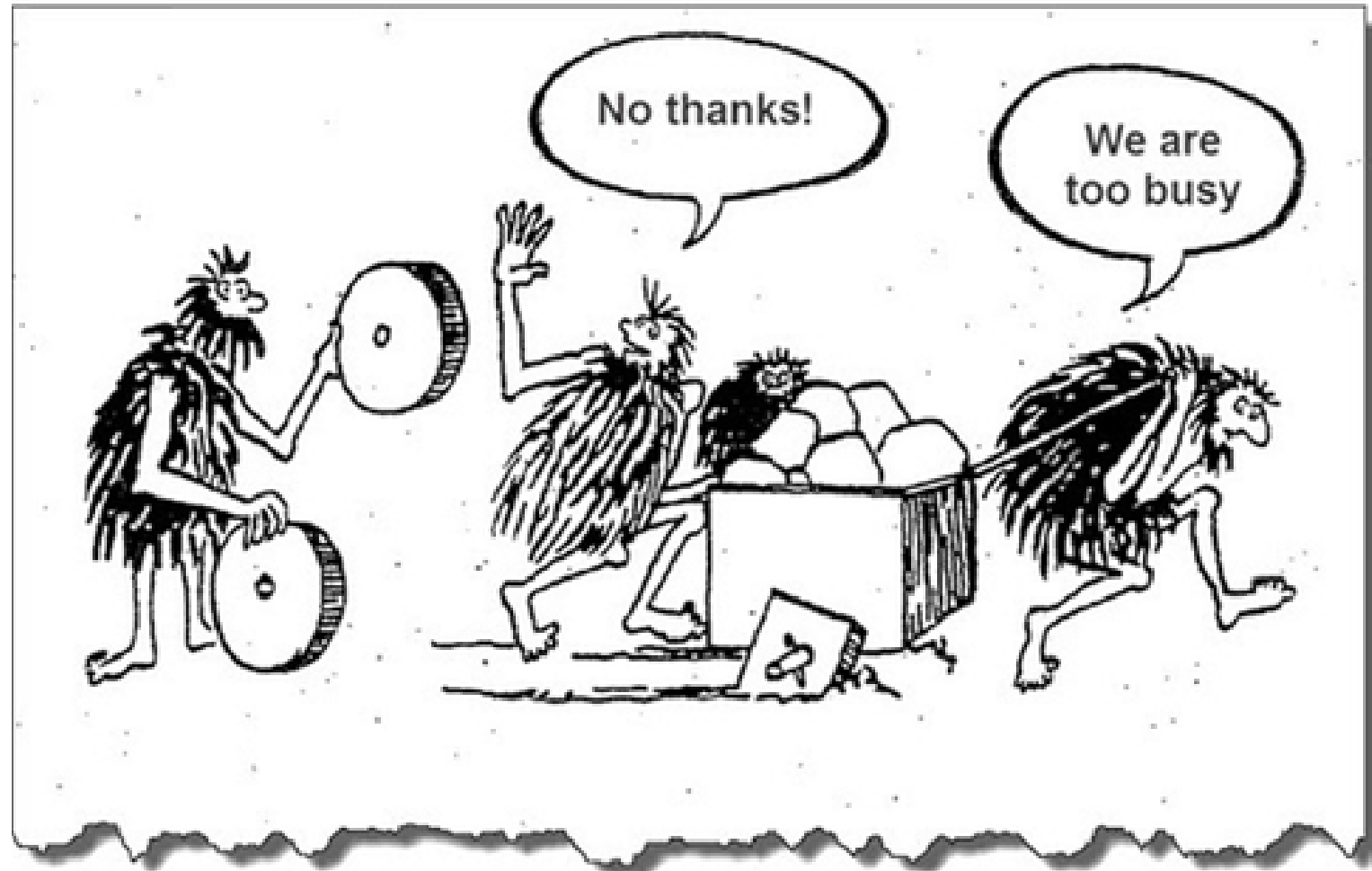
Introduction

Preparation

Questions

Techniques

Conclusion





But how does one make music?

Introduction

Preparation

Questions

Techniques

Conclusion





Small Group Activity #1

Introduction

- What strategies do you employ when teaching multiple levels of learners simultaneously?

Preparation

- Discuss in groups of three or four

Questions

- Share with the larger group.

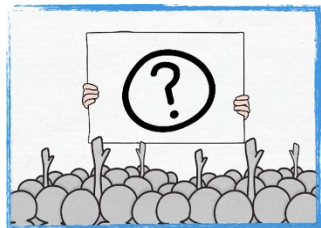
Techniques

Conclusion





QUESTIONS:
Use of questioning
as a teaching tool



Bloom's and Revised Bloom's Taxonomy

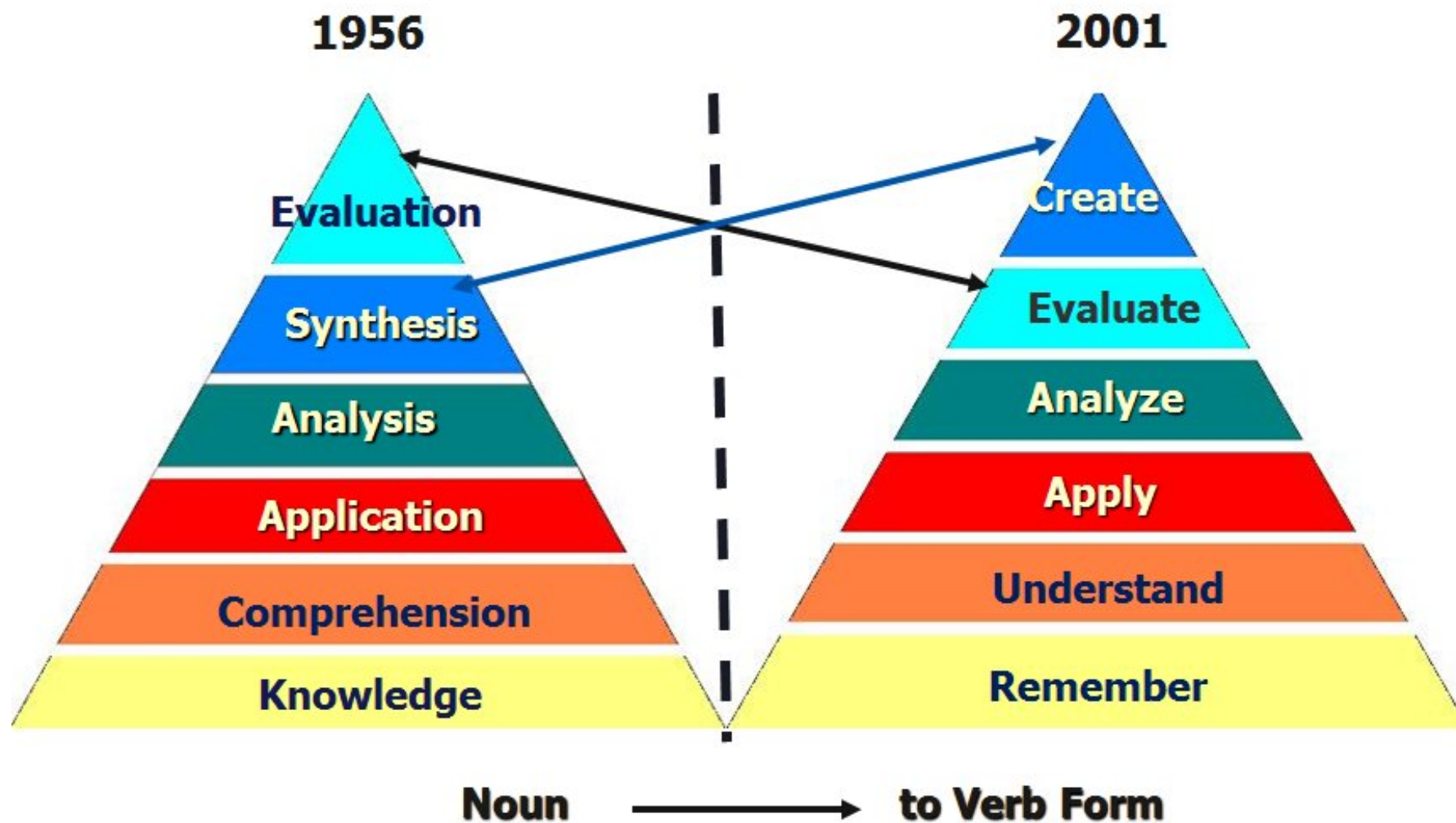
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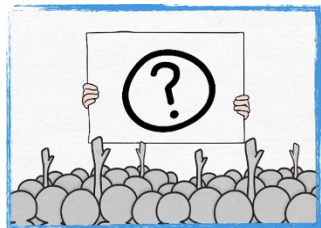
Preparation

Questions

Techniques

Conclusion





Introduction

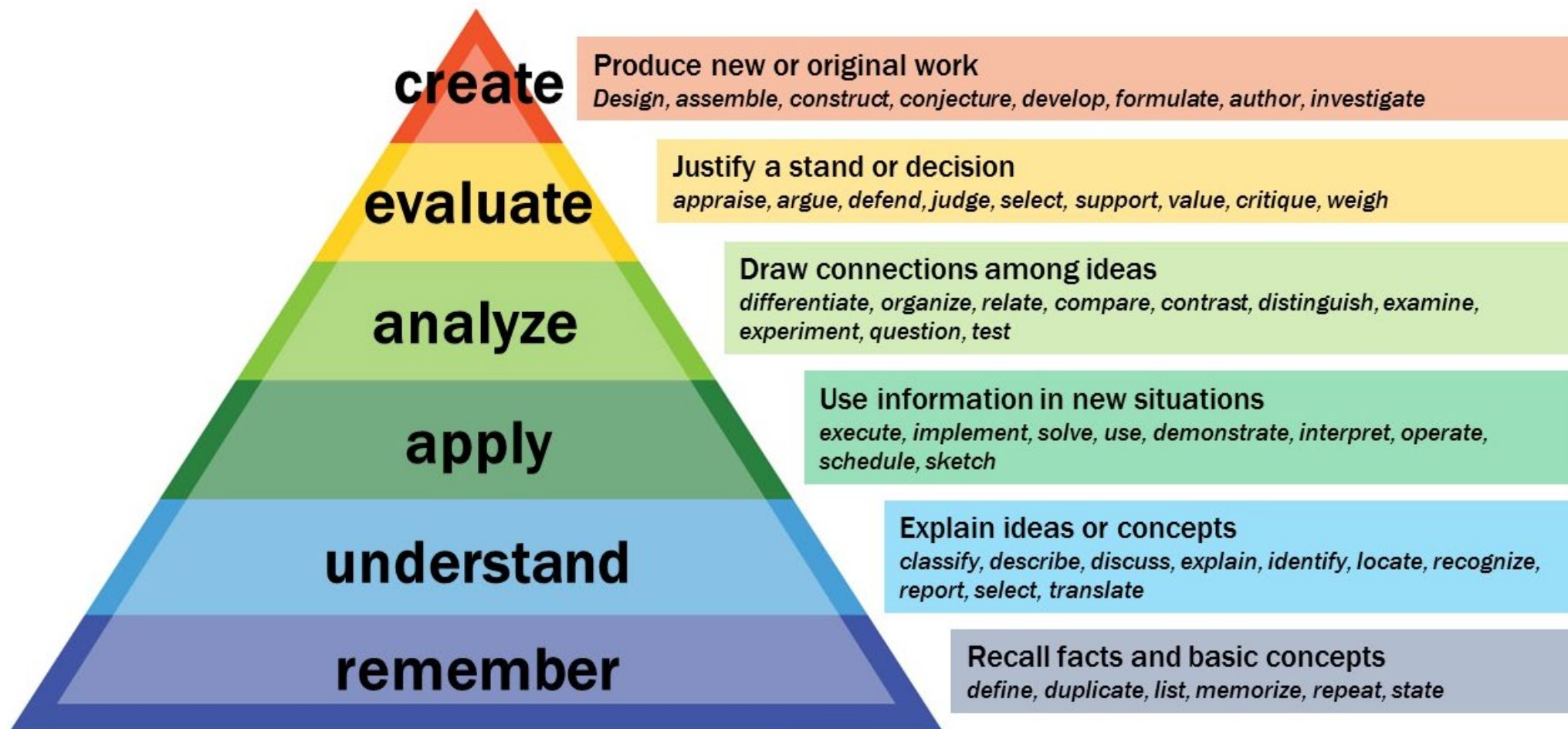
Preparation

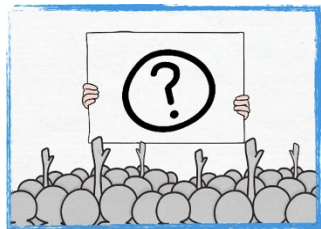
Questions

Techniques

Conclusion

Bloom's Taxonomy





Bloom's Questions

Introduction

Remember

- *“What is the mechanism of action of acetaminophen?”*

Preparation

Understand

- *“Describe the goals of therapy in patients with malignant pain?”*

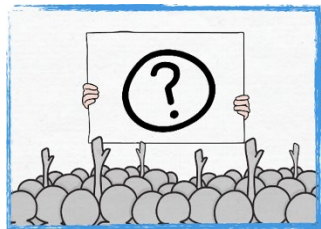
Questions

Techniques

Apply

- *“According to the WHO guidelines, what would be the most appropriate choice in this case scenario?”*

Conclusion



Bloom's Questions

Introduction

Preparation

Questions

Techniques

Conclusion

Analyze

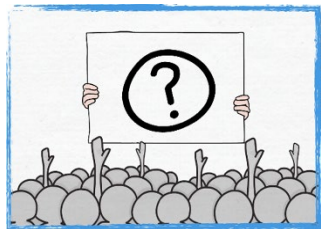
- *“Given the patient’s symptoms, what are the most likely etiologies of her pain?”*

Evaluate

- *“Based on the findings of this study, what do you believe is the role of pregabalin in the treatment of post-herpetic neuralgia”*

Create

- *“This patient has had four ER visits in the past month due to uncontrolled pain. How would you manage this patient to help prevent another urgent care visit?”*



Question Classification

Introduction

Preparation

Questions

Techniques

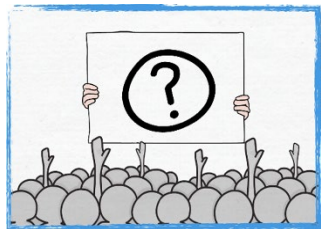
Conclusion

- **Convergent**

- closed questions, not offering many options
- questions converge on a single or narrow list of “best” answers

- **Divergent**

- open-ended questions
- permits exploration of diverse perspectives
- encourages dialogue



Question Classification

Introduction

Preparation

Questions

Techniques

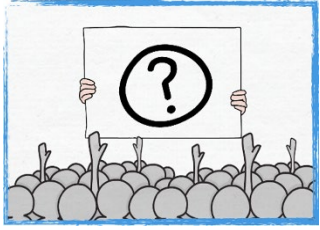
Conclusion

- **Low Order**

- Questions that elicit responses in the knowledge, comprehension and application domains

- **High Order**

- Elicit deeper and more critical thinking
 - Questions that elicit responses in the analysis, synthesis and evaluation domains



Question Classification

Introduction

Preparation

Questions

Techniques

Conclusion

**Comprehension
Application**

Knowledge

Convergent,
High Order

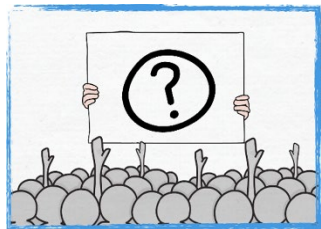
Convergent,
Low Order

Divergent,
High Order

Divergent,
Low Order

**Synthesis
Evaluation**

Analysis



Examples of Questions

Introduction

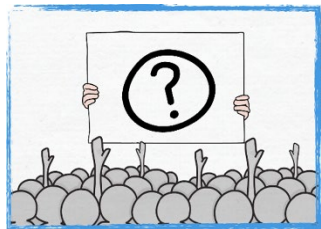
Preparation

Questions

Techniques

Conclusion

- Low-order, convergent ~ Knowledge
 - ***“What are drugs that have proven mortality benefit in heart failure with reduced EF?”***
- High-order, convergent ~ Comprehension and Application
 - *“In what ways is heart failure with reduced EF different from heart failure with preserved EF?”*
- Low-order, divergent ~ Analysis
 - *“Why might it be difficult for our homeless patients with heart failure to adhere to their prescribed low-salt diet?”*
- High-order, divergent ~ Synthesis, Evaluation
 - *“Given the results of the COURAGE trial for PCI vs medical therapy in patients with ACS, what is your recommendation for our patient?”*



Examples of Questions

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Preparation

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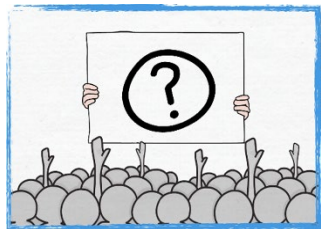
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Techniques

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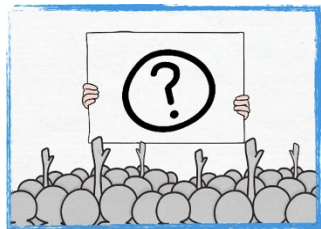
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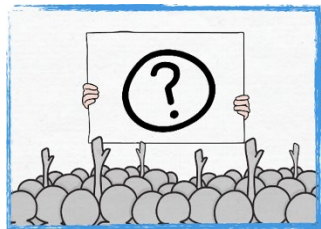
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Conclusion



Questioning When Teaching

Introduction

Preparation

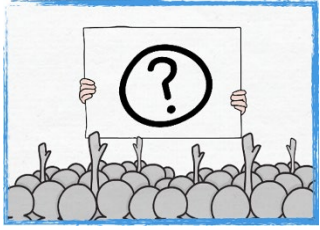
Questions

Techniques

Conclusion

- **Create safe environment**
 - Growth mindset
- **Set expectations**
 - Questions are a learning exercise.
 - It is OK to not know the answer, but trying is expected.
- Focus on the team, not the individual
- Avoid “read my mind.”
- Start with an easy question (a question 90% of the people will know 90% of the time)
- Always question up the team
- Allow for an out
 - Phone a friend
- Wait time and think time





Questioning When Teaching

Introduction

Preparation

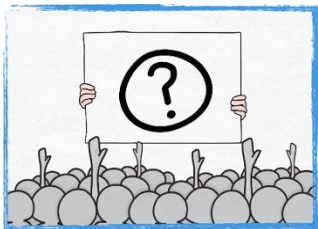
Questions

Techniques

Conclusion

- Change the scenario
 - Ask, “What if...??”
- Extend the question
- Ask, “Why?”
- Probe the student
 - Encourage students to complete, clarify , expand or support their answers
- “Redirect questions to the other learners
 - “What does everyone else think?”
- Be democratic; get a commitment from each learner.
- Generate discussions
- Majority of questions should be clinical reasoning, rather than facts
- **Pre-plan questions that lead to key teaching points***





Correcting Wrong Answers

Introduction

Preparation

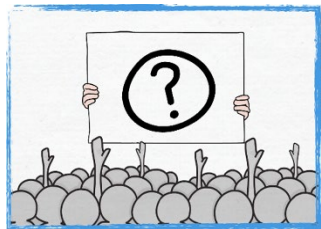
Questions

Techniques

Conclusion

- Have a list of stock phrases
- Look for the nugget of truth in answer...and praise it, reinforce it...then build on it.
- Lead them to the correct answer
- Encourage/model self-directed learning
 - Look it up and report back
- Encourage learners' questions





Small Group Activity #2

Introduction

Preparation

Questions

Techniques

Conclusion

- Using Bloom's taxonomy or the 4-Quadrant classification system as a guide, create teaching points/questions for the following trainees:

Trainees	Possible Topics (Pick one)
<ul style="list-style-type: none">• New medical student• Advanced med student/sub-intern• Intern• Resident/Fellow	<ul style="list-style-type: none">• Pulmonary – Pneumonia• Hematology – Anemia• Renal – Acute Kidney Injury• Infectious Disease – Sepsis



Take Home Points

Introduction

Preparation

Questions

Techniques

Conclusion

- Good clinical teaching is not completely opportunistic
- It is especially important to do your homework when teaching a session that includes multilevel learners
- Develop questions surrounding key teaching points ahead of time
- Attempt to utilize higher-order questions when possible
- **Please refer to Part 2 for a discussion of specific techniques used to teach multilevel learners**



References

Introduction

Certain LK, Guarino AJ, Greenwald JL. Effective multilevel teaching techniques on attending rounds: A pilot survey and systematic review of the literature. *Med Teach*. 2011;33(12):e644-e650.

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Chen HC, Fogh S, Kobashi B, Tehrani A, Ten Cate O, O'Sullivan P. An interview study of how clinical teachers develop skills to attend to different level learners. *Med Teach*. 2016;38:578-584.

Chen HC, O'Sullivan P, Tehrani A, Fogh S, Kobashi B, Ten Cate O. Sequencing learning experiences to engage different level learners in the workplace: An interview with excellent clinical teachers. *Med Teach*. 2015;37:1090-1097.

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Long M, Blankenberg R, Butani L. Questioning as a Teaching Tool. *Pediatrics*. 2015;133(3):406-408.

Techniques

Quigley PD, Potisek NM, Barone MA. How to “ENGAGE” Multilevel Learner Groups in the Clinical Setting. *Pediatrics*. 2017;140(5)e20172861.

Tofade T, Elsner J, Haines ST. Best Practice Strategies for Effective Use of Questions as a Teaching Tool. *American Journal of Pharmaceutical Education*. 2013;77(7):Article 155.

Conclusion