

FALL 2025



Pause. Think.

Think Lab

Think Team

Agenda

- Announcements
- CS Spotlight: Dixin Tang
- Linguistics+CS Spotlight: Jessy Li
- Pause. Think.

Announcements

- Discussion Sections again next week, where we will begin thinking about career paths
- No worries about missing Bad Advice with Devangi and Alison. You have direct access to them, and they are giving you advice every week.
- Many grades available in Canvas
- No late work accepted after November 1st. No exceptions. All due dates after that will be enforced, too.

CS Spotlight:

Dixin Tang

Databases

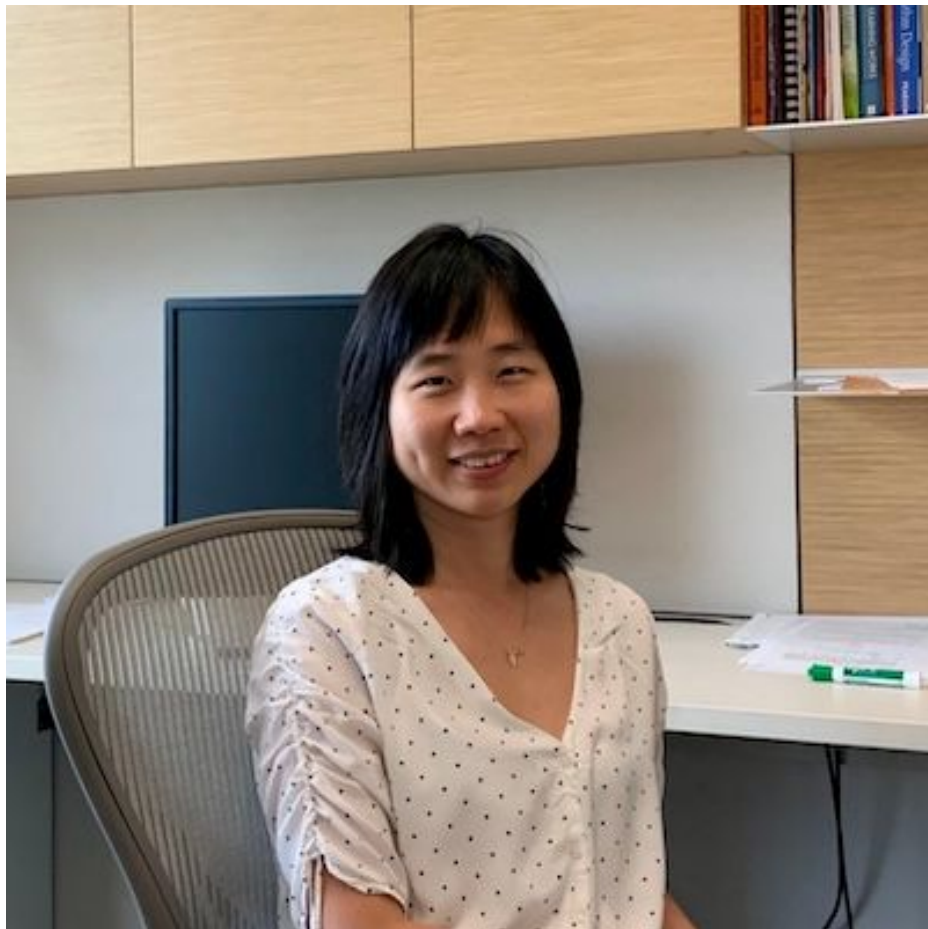


Linguistics+CS

Spotlight:

Jessy Li

Linguistics



Pause. Think.

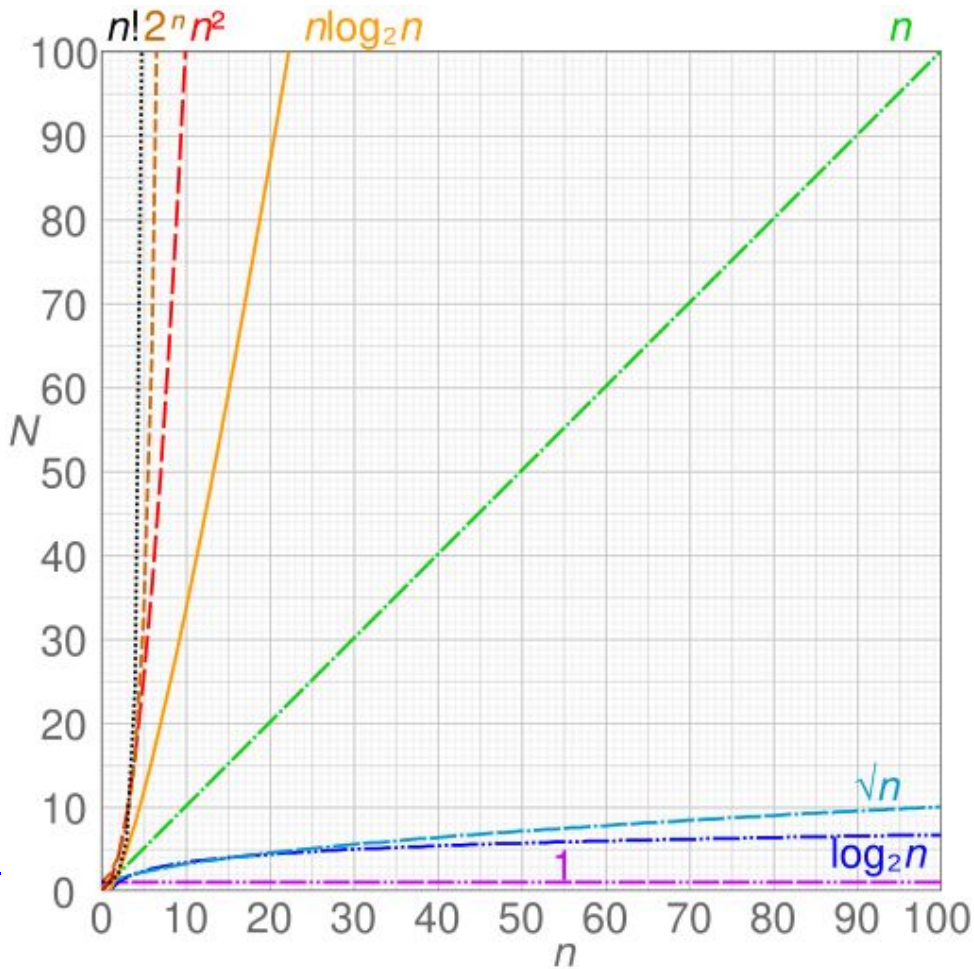
Let's talk about dishwashers

Who either believes there is a correct way to load a dishwasher or know someone who does?

Polynomial Time

For input size n ,
computation time of the
algorithm is bounded by a
polynomial expression
based on n .

Chart from Wikipedia



How do we know?



=



The Pigeonhole Principle

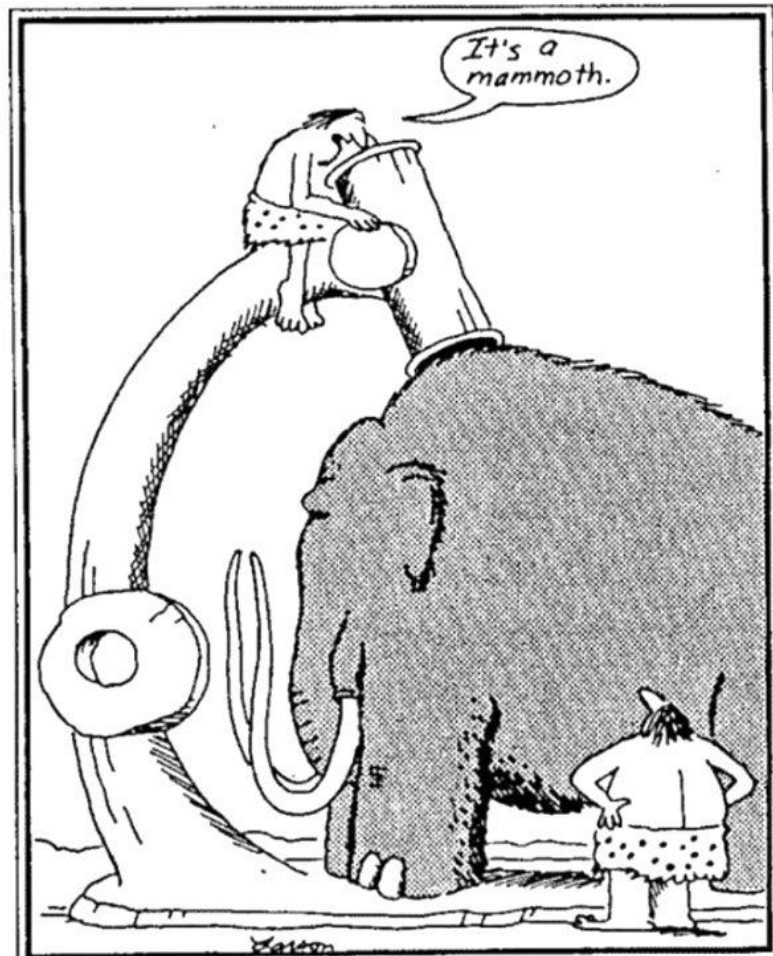


[Image from teenytinytails.com](https://teenytinytails.com)

Remembering

Finding or remembering information

- List
- Name
- Identify
- Locate
- Describe
- Memorize
- Define



Early microscope



Moments before he was ripped to shreds, Edgar vaguely recalled having seen that same obnoxious tie earlier in the day.

Understanding

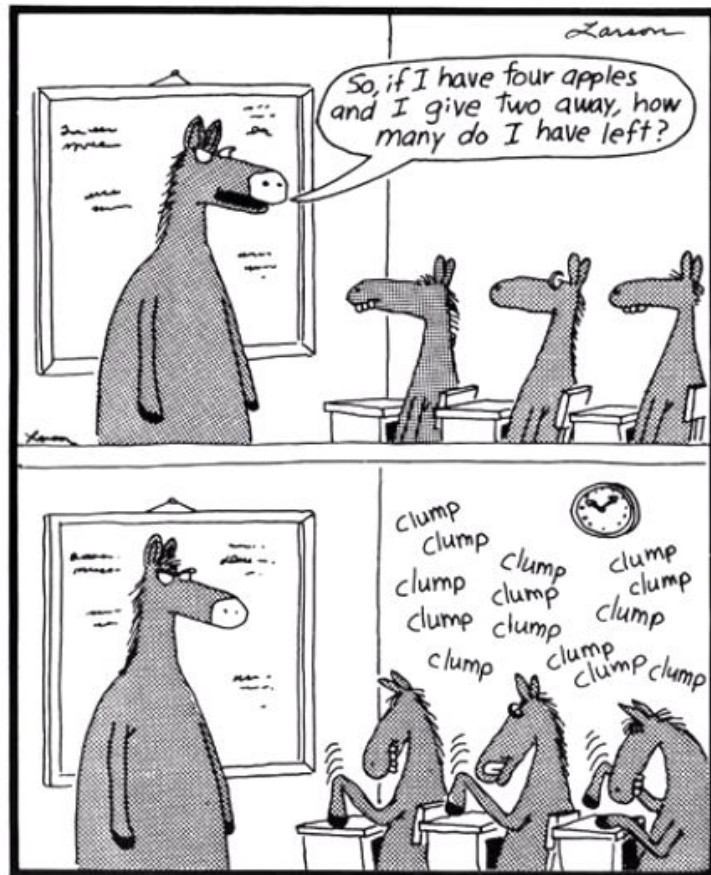
Understanding and making sense out of information

- Infer
- Interpret
- Summarize
- Explain

Applying

Using new information in a new (but similar) form

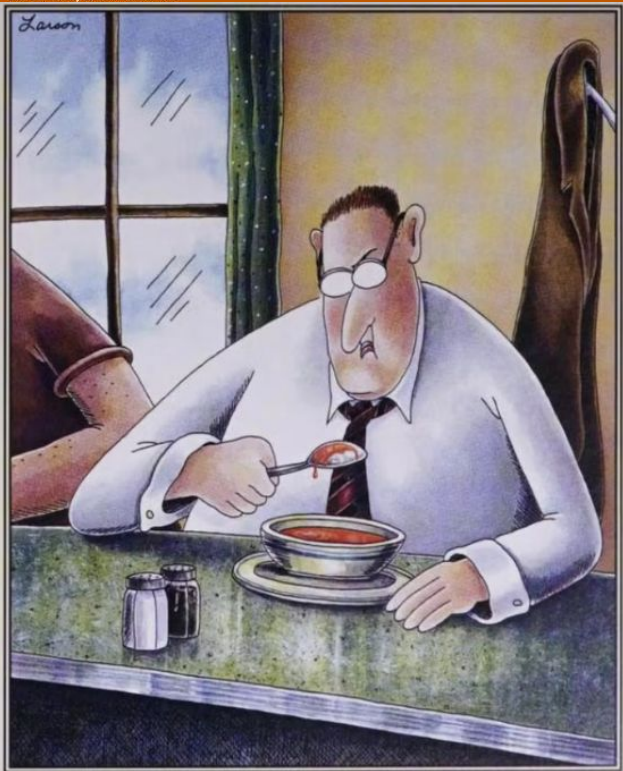
- Use
- Diagram
- Draw
- Solve
- Calculate



Analyzing

Taking information apart and exploring relationships

- Categorize
- Examine
- Organize
- Compare
- Contrast

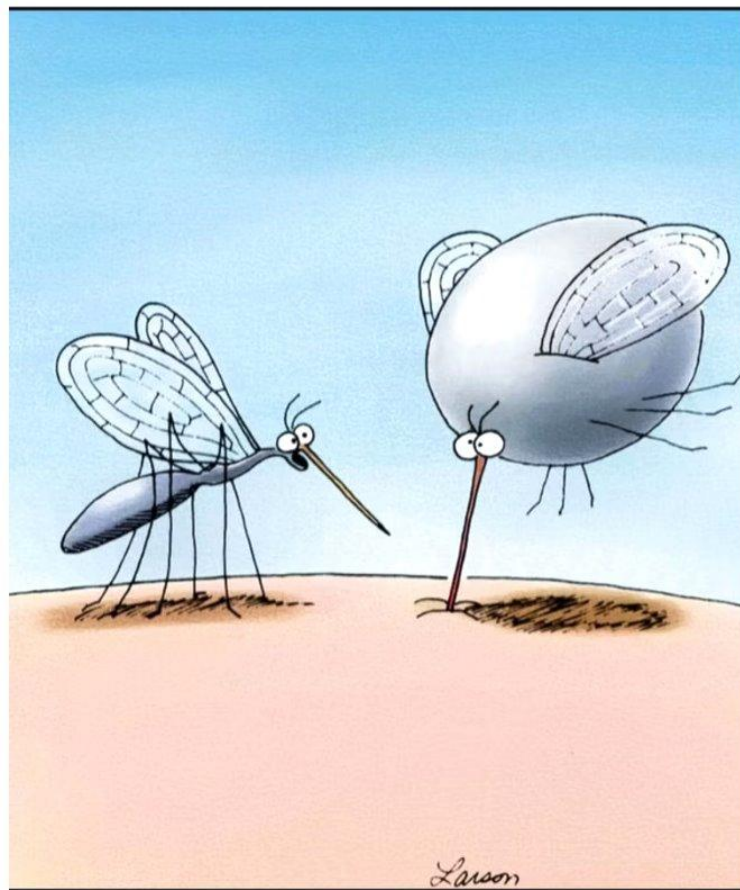


Darrell suspected someone had once again slipped him a trick spoon with the concave side reversed.

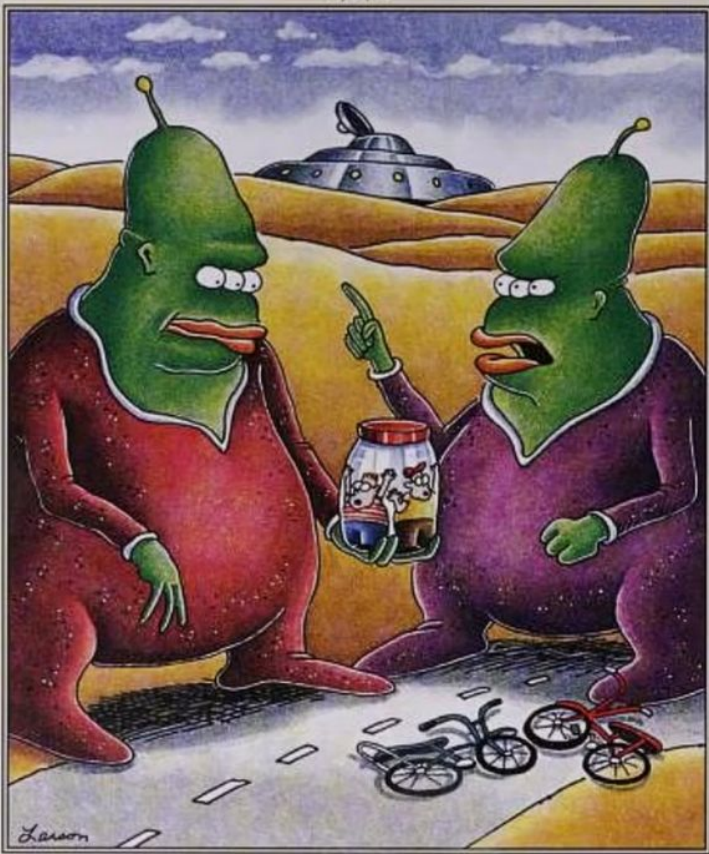
Evaluating

Critically examining information to make judgements

- Judge
- Critique
- Test
- Defend
- Criticize
- Decide



"Pull out, Betty! Pull out! ... You've hit an artery!"



“Now, don’t forget, Gorok! ... *This time punch some holes in the lid!*”

Creating

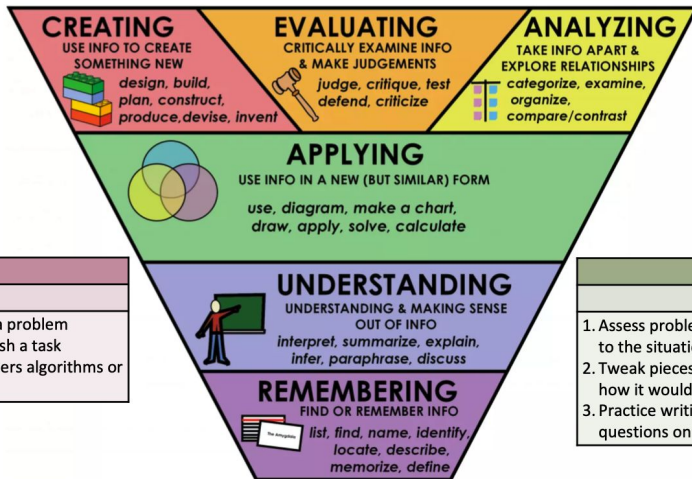
Using information to create something new

- Design
- Build
- Plan
- Construct
- Produce
- Invent

EVALUATING
Study Tips
1. Review project designs and defend design decisions 2. Defend your design decisions with a group

ANALYZING
Study Tips
1. Develop a cost benefits analysis of applying different algorithms to a specific problem 2. Work with partner to identify concepts and create a concept map connecting ideas

BLOOM'S TAXONOMY



CREATING
Study Tips
1. Create a new algorithm to solve a problem 2. Design a new system to accomplish a task 3. Review and critique group members algorithms or systems

APPLYING
Study Tips
1. Assess problems and apply the correct formulas to the situation 2. Tweak pieces of a design or algorithm and predict how it would change the outcome 3. Practice writing out solutions to old exam questions on the board

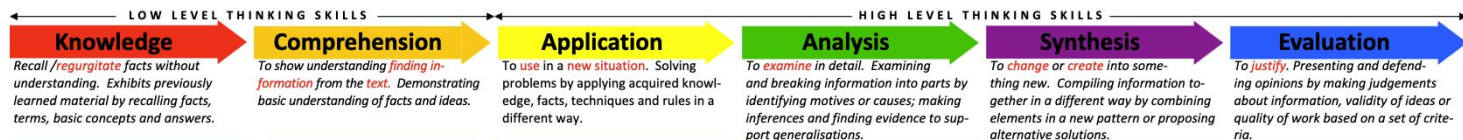
REMEMBERING
Study Tips
1. Label diagrams 2. List characteristics in writing or aloud 3. Quiz yourself with flash cards 4. Check a diagram another student labeled

UNDERSTANDING
Study Tips
1. Describe a process in your own words 2. Provide an example of the process 3. Create a concept map 4. Discuss concepts with peers 5. Take turns describing processes with each other

To practice and understand

Three times:

1. Develop an exam question using sentence stems from Bloom's Taxonomy (next slide).
2. Consider what class topics are covered by that problem.
3. List what patterns you want the students to recognize to solve the problem.



Key words:			Key words:			Key words:			Key words:			Key words:			Key words:		
Choose	Observe	Show	Ask	Extend	Outline	Act	Employ	Practice	Analyse	Examine	Prioritize	Adapt	Estimate	Plan	Agree	Disprove	Measure
Copy	Omit	Spell	Cite	Generalise	Predict	Administer	Experiment	Relate	Appraise	Find	Question	Add to	Experiment	Predict	Appraise	Dispute	Opinion
Define	Quote	State	Classify	Give examples	Purpose	Apply	with	Represent	Arrange	Focus	Rank	Build	Extend	Produce	Argue	Effective	Perceive
Duplicate	Read	Tell	Compare	Contrast	Rephrase	Associate	Group	Select	Breakdown	Function	Reason	Change	Formulate	Propose	Assess	Estimate	Persuade
Find	Recall	Trace	Contrast	Illustrate	Report	Build	Calculate	Show	Categorise	Happen	Relationships	Choose	Hypothesis	Reframe	Award	Evaluate	Prioritise
How	Recite	What	Illustrate	Indicate	Restate	Calculate	Interpret	Solve	Effect	In-depth	Reorganise	Compile	Imagine	Rewrite	Bad	Explain	Prove
Identify	Recognise	When	Discuss	Infer	Review	Choose	Link	Summarise	Choose	Improve	Research	Compose	Simplify	Choose	Give reasons	Rate	Recommend
Label	Record	Where	Estimate	Interpret	Show	Classify	Make use of	Teach	Choose	Infer	See	Construct	Innovate	Solve	Conclude	Grade	Rule on
List	Relate	Which	Explain	Match	Summarise	Connect	Manipulate	Translate	Classify	Inspect	Select	Convert	Integrate	Speculate	Consider	How do we	Select
Listen	Remember	Who	Express	Observe	Translate	Construct	Model	Use	Differences	Investigate	Separate	Create	Invent	Substitute	Convince	know?	Support
Locate	Repeat	Why				Correlation	Organise		Discover	Isolate	Similar to	Delete	Make up	Suppose	Criteria	Importance	Test
Match	Reproduce	Write				Demonstrate	Perform		Discriminate	List	Simplify	Design	Maximise	Tabulate	Criticise	Influence	Useful
Memorise	Retell					Develop	Plan		Dissect	Motive	Survey	Develop	Minimise	Test	Debate	Influence	Validate
Name	Select					Dramatise			Distinction	Omit	Take part in	Devise	Model	Theorise	Decide	Interpret	Value
									Distinguish	Order	Test for	Discover	Modify	Think	Deduct	Judge	Why
									Divide	Organise	Theme	Discuss	Original	Transform	Defend	Justify	
									Establish	Point out	Comparing	Elaborate	Originate	Visualise	Determine	Mark	

Actions:	Outcomes:	Actions:	Outcomes:	Actions:	Outcomes:	Actions:	Outcomes:	Actions:	Outcomes:	Actions:	Outcomes:
Describing	Definition	Classifying	Collection	Carrying out	Demonstration	Attributing	Abstract	Constructing	Advertisement	Attributing	Abstract
Finding	Fact	Comparing	Examples	Executing	Diary	Deconstructing	Chart	Designing	Film	Checking	Chart
Identifying	Label	Exemplifying	Explanation	Implementing	Illustrations	Integrating	Checklist	Devising	Media product	Deconstructing	Checklist
Listing	List	Explaining	Label	Using	Interview	Organising	Database	Inventing	New game	Integrating	Database
Locating	Quiz	Infering	List		Journal	Outlining	Graph	Making	Painting	Organising	Graph
Naming	Reproduction	Interpreting	Outline		Performance	Structuring	Mobile	Planning	Plan	Outlining	Mobile
Recognising	Test	Paraphrasing	Quiz		Presentation		Report	Producing	Project	Structuring	Report
Retrieving	Workbook	Summarising	Show and tell		Sculpture		Spread sheet		Song		Spread sheet
	Worksheet		Summary		Simulation		Survey		Story		Survey

Questions:	Questions:	Questions:	Questions:	Questions:	Questions:	Questions:	Questions:
Can you list three ...?	Can you explain what is happening ... what is meant ...?	How would you use...?	What are the parts or features of ...?	What changes would you make to solve...?	Do you agree with the actions/outcomes...?		
Can you recall ...?	How would you classify the type of ...?	What examples can you find to ...?	How is _____ related to ...?	What is your opinion of ...?	What is your opinion of ...?		
Can you select ...?	How would you compare ...?contrast ...?	How would you solve _____ using what you have learned ...?	Why do you think ...?	How would you prove/disprove...?	How would you prove/disprove...?		
How did _____ happen?	How would you rephrase the meaning ...?	How would you organise _____ to show ...?	What is the theme ...?	Can you elaborate on the reason...?	Can you assess the value/importance of ...?		
How is ...?	How would you summarise ...?	How would you show your understanding of ...?	What motive is there ...?	Can you propose an alternative...?	Would it be better if...?		
How would you describe ...?	What can you say about ...?	What approach would you use to...?	Can you list the parts ...?	Can you invent...?	Why did they (the character) choose...?		
How would you explain ...?	What facts or ideas show ...?	How would you apply what you learned to develop ...?	What inference can you make ...?	How would you adapt _____ to create a different...?	What would you recommend...?		
How would you show ...?	What is the main idea of ...?	What other way would you plan to ...?	How would you categorise ...?	How could you change (modify) the plot (plan)...?	How would you rate the...?		
What is ...?	Which is the best answer ...?	What would result if ...?	Can you identify the difference parts ...?	What could be done to minimise (maximise)...?	What would you cite to defend the actions...?		
When did ...?	Which statements support ...?	Can you make use of the facts to ...?	What evidence can you draw ...?	What way would you design...?	How would you evaluate ...?		
When did _____ happen?	Will you state or interpret in your own words ...?	What elements would you choose to change ...?	What is the relationship between ...?	Suppose you could _____ what would you do...?	How could you determine...?		
Where is ...?		What facts would you select to show ...?	Can you make a distinction between ...?	How would you test...?	What choice would you have made...?		
Who was ...?		What questions would you ask in an interview with ...?	What is the function of ...?	Can you formulate a theory for...?	What would you select...?		
Who were the main ...?			What ideas justify ...?	Can you predict the outcome if...?	How would you prioritise...?		
Why did ...?				How would you estimate the results for...?	What judgement would you make about...?		
				What facts can you compile...?	Based on what you know, how would you explain...?		
				Can you construct a model that would change...?	What information would you use to support the view...?		
				Can you think of an original way for the ...?	How would you justify...?		
					What data was used to make the conclusion...?		

Bloom's Taxonomy: Teacher Planning Kit

Thank you!

See you next week!