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Data Helps Us Decide - Foundation

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Teacher guide · purpose and setup

The teaching question

Which borrowed tools should our shared tray contain more of?

Fictional one-period loans: scissors 5, rulers 3, glue sticks 4.

Each picture means one observed loan. This record supports a decision for this period only.

Prior knowledge and diagnostic

Ask learners to match/count two small groups and say more, less or same.

Show two loans without an answer, then note whether they know that a picture represents one loan. Teach only the insecure prerequisite.

Equipment and access

Prepare scissors, rulers and glue-stick image tokens, R1 display, R2 cards, R3 mats, R4 activity, pencils. Use concrete tokens and a partly labelled table for support. Accept only pointing or marked-mark responses when reading or motor skill is not the target.

Success to look for

Learner records every loan once, sorts by one consistent tool-type rule, compares counts, proposes a tray choice with evidence and avoids an “always” claim from one period.

Teacher guide · lessons 1-3

Lesson 1 · Hear the question

5 min diagnostic: match/count two small groups. 10 min model: use R1 and R2 cards 1–3 to say the given question and model one picture per observed loan. 15 min guided cards 4–6: contrast a missing, duplicate and one-per-category mark. 5 min exit: each learner points to evidence for more/fewer; record the misconception.

Lesson 2 · Record with pictures

5 min retrieve only insecure counting. 10 min model a changed example. 15 min R3 guided page: learners finish the picture log, compare five processors with four glue-stick loans and explain a tray choice. 5 min exit: each observed loan has one mark and no category overlaps.

Lesson 3 · Check the record

5 min revisit one error from Lesson 1. 10 min demonstrate a complete R4 turn, including a missing picture and constructive correction. 15 min partner cards and R3 check-and-compare; listen to a data-based reason from every learner. 5 min exit: ask what duplicate mark changes.

Support, core and extension

Support: move physical tokens onto a partly labelled log. Core: independently record and compare. Extension: identify a duplicate/missing mark, or explain a limit. All routes still require data evidence.

Teacher guide · lessons 4-5 and key

Lesson 4 · Compare and transfer

5 min retrieve the one-picture rule. 10 min model R3 new observation. 15 min R5 rehearsals: 3/5/2 suggests rulers, while 4/4/1 gives a scissors–rulers tie. Ask partners to explain an unmatched picture. 5 min feedback: repair an “always” claim by naming the one-period limit, then retry on the other case.

Lesson 5 · Assess and respond

5 min recall criteria without final answers. 20 min independent R6: 4 scissors, 2 rulers, 5 glue-stick loans. Expect one picture per loan comparison and a decision supported by five glue-stick loans; do not allow a justified cautious choice. 10 min use R7 to record actual evidence and targeted next step.

R4 card answer key

1 scissors; 2 rulers; 3 rulers; 4 scissors and rulers tie; 5 glue sticks; 6 scissors and glue sticks tie; 7 rulers; 8 rulers; 9 scissors and rulers tie; 10 glue sticks; 11 rulers; 12 rulers.

Marking notes

A correct answer names the recorded period and compares at least two counts. Do not treat a guess, a preferred tool or a claim about all future days as data evidence. Do not mark down an accessible response mode or justified alternative.

Our borrowed tools

Which borrowed tools should our shared tray contain more of?



5 scissors loans



3 ruler loans



What do 4 glue stick loans tell us?

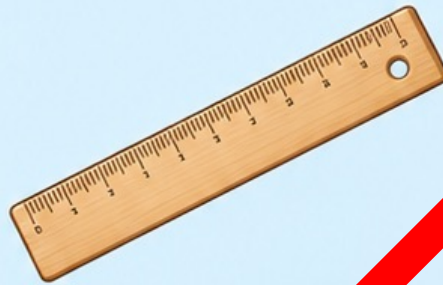


Use the pictures to compare before deciding.

Borrowed tools: cards 1–3

1 Our question

Which borrowed tools should our shared tray contain more of?



2 Record scissors



5 observed scissors loans

3 Compare



Which group has more?

Borrowed tools: cards 4–6

4

Record glue sticks



4 glue stick loans

5

Find a missing picture



**2 ruler loans were observed.
What is missing?**

6

Find a duplicate picture



**5 scissors loans were observed.
What must change?**



Data Helps Us Decide

We can look at data to answer questions and make decisions.

Look
Count
Think
Decide

7 Compare

Look at the tool loans below.
How many more scissors loans?



8 One more glue loan

Now there is one more glue loan.
More, fewer or the same?



9 One picture for each loan

Look at the two records of ruler loans.
Which record can we count?

A. Three ruler loans



B. One ruler for all three loans



Borrowed tools: cards 10-12



Data
helps us
decide.

10 Decide for this period



scissors



rulers



glue sticks



What should we add to the tray? Why?

11 A different period



scissors



rulers



glue sticks



What should we add to the tray? Why?

12 Be careful

Does one period tell us what
will always happen?



Name: _____

Data Helps Us Decide

Picture tool-tray planning mat — guided

Which borrowed **tools** should our shared tray contain more of?

One observation period:

Scissors

5



Rulers

3

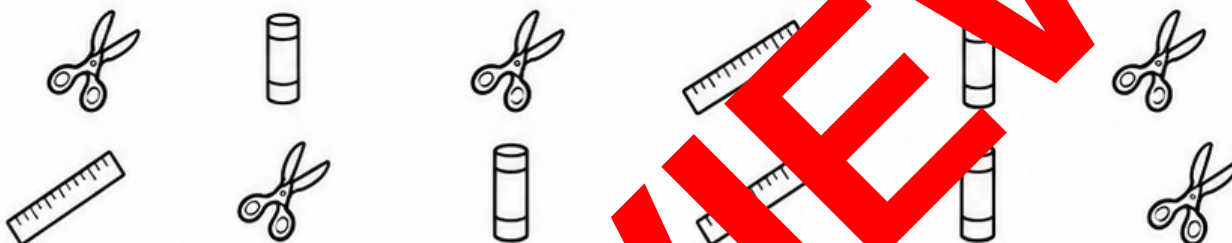


Glue sticks

4



1 Circle each loan in the correct tool group.



2 Finish the picture log. Draw one picture for each loan.

Tool	Picture log (one picture for each loan)
Scissors	
Rulers	
Glue sticks	

3 Match scissors and glue stick pictures: which group has more?

4 We could add _____ because _____.

Name: ANSWERS

Data Helps Us Decide

Picture tool-tray planning mat — guided

Which borrowed **tools** should our shared tray contain more of?

One observation period:

Scissors

5



Rulers

3



Glue sticks

4



1 Circle each loan in the correct tool group.



2 Finish the picture log. Draw one picture for each loan.

Tool	Picture log (one picture for each loan)
Scissors	
Rulers	
Glue sticks	

3 Match scissors and glue stick pictures: which group has more?

Scissors — 1 more than glue sticks.

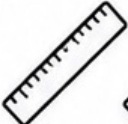
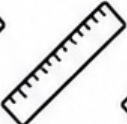
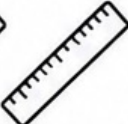
4 We could add scissors because 5 observed loans is the most.

Name: _____

Picture tool-tray planning mat — check and compare

Period A

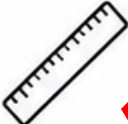
Scissors loans:     

Ruler loans:   

Glue-stick loans:    

Period B

Scissors loans:  

Ruler loans:    

Glue-stick loans:   

1. How many loans in Period B?

2. A recorder added a sixth scissors picture to Period A by mistake. What should change?

3. A recorder drew only two glue-stick pictures for Period B. What is missing?

4. Which tool had the most loans in Period B?

5. Compare B's rulers and glue sticks. Which has more?

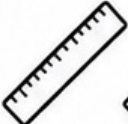
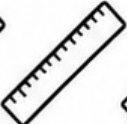
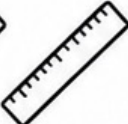
6. What could we add to the tray after Period B? Why? Does this tell us what will always happen?

Name: **ANSWERS**

Picture tool-tray planning mat — check and compare

Period A

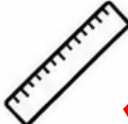
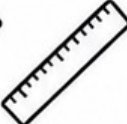
Scissors loans:     

Ruler loans:   

Glue-stick loans:    

Period B

Scissors loans:  

Ruler loans:    

Glue-stick loans:   

1. How many loans in Period B?

9 loans.

2. A recorder added a sixth scissors picture to Period A by mistake. What should change?

Remove the extra sixth scissors picture; five were observed.

3. A recorder drew only two glue-stick pictures for Period B. What is missing?

One glue-stick picture is missing; three were observed.

4. Which tool had the most loans in Period B?

Rulers, 4 loans.

5. Compare B's rulers and glue sticks. Which has more?

Rulers have one more loan than glue sticks.

6. What could we add to the tray after Period B? Why? Does this tell us what will always happen?

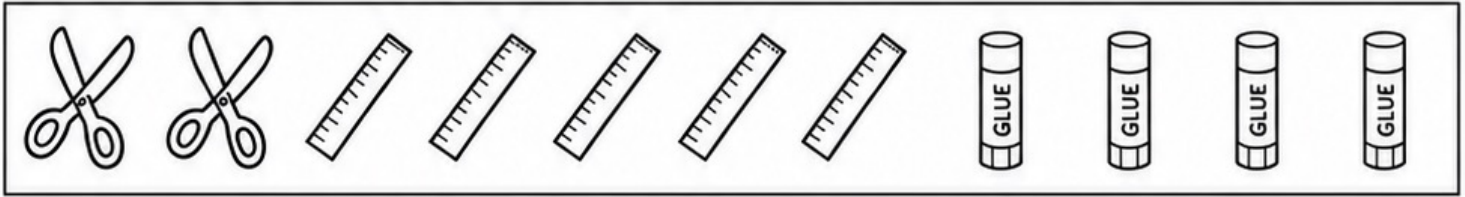
Add rulers for this period because 4 loans is most. One period cannot show what always happens.

Name: _____

Tools
give us
ideas!

Picture tool-tray planning mat – new observation

These are the tool loans we observed:



① Record one picture for each loan.

	Scissors	
	Rulers	
	Glue sticks	

② Compare rulers and glue sticks by matching.
Draw lines to match each ruler with a glue stick.

Rulers	Glue sticks

_____ has _____ more loan.

③ We could add _____ because _____.

Can we say this tool is always most borrowed? Why or why not?



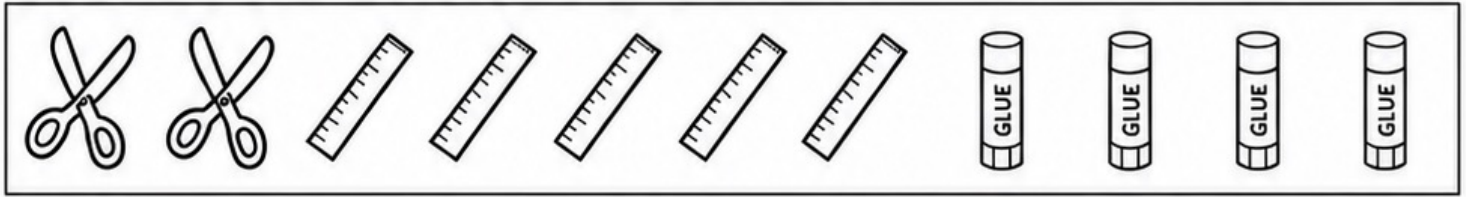
Data
helps us
decide

Name: **ANSWERS**

Tools
give us
ideas!

Picture tool-tray planning mat – new observation

These are the tool loans we observed:



① Record one picture for each loan.

Scissors	
Rulers	
Glue sticks	

② Compare rulers and glue sticks by matching.
Draw lines to match each ruler with a glue stick.



Rulers have **1** more loan.

③ We could add **rulers** because **5 is most**.

Can we say this tool is always most borrowed? Why or why not?

No. This was only one observation period.



Data
helps us
decide

Data-supported decision role cards — how to play

Use data from each card to decide which item we could add next.

Small data helps big ideas!

Equipment



Work with a partner



Steps

- 1 Pick one card.**
Choose a challenge card.

scissors 5
rulers 3
glue sticks 4
- 2 Make or check one picture per loan.**
Use the picture tokens or draw and check. One picture equals one observed loan.

5 4
- 3 Compare groups.**
Look at which group has the most, least or if they are the same.

We could add _____ cause _____.
- 4 Say a decision.**
Complete the sentence.

What can't one period show?
- 5 Partner checks the key.**
Ask: What is one thing this single period cannot show?
- 6 Swap roles.**
Your partner picks the next card. Keep going until you each finish six turns.

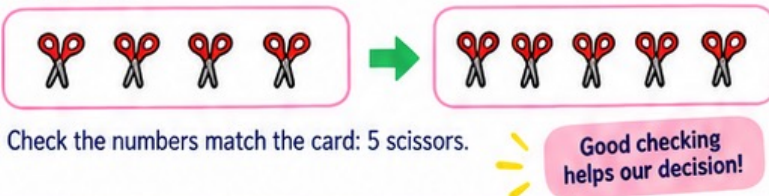
Worked turn

Here is an example of one complete turn.

- 1 Challenge card**
scissors 5
rulers 3
glue sticks 4
- 2 Make or check 12 pictures**
5 + 3 + 4 = 12 pictures
- 3 Compare**
Scissors have the most.
5 3 4
- 4 Decision**
Add scissors for this period: five loans is the most.

Constructive correction

If only four scissors pictures are drawn, add the missing fifth picture.



Finish the game

Keep taking turns until you have each completed six turns.



Six turns each!
Great teamwork!

Data helps us decide!

Data decision cards 1-6

Look at the data on each card. Then answer the question.

1

Scissors

5



Rulers

3



Glue sticks

4



What could we add? Why?

2

Scissors

3



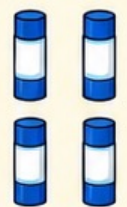
Rulers

5



Glue sticks

4



What could we add? Why?

3

Scissors

2



Rulers

4



Glue sticks

3



What could we add? Why?

4

Scissors



Rulers

4



Glue sticks

2



Is there one winner? Why?

5

Scissors

3



Rulers

2



Glue sticks

5



What could we add? Why?

6

Scissors

4



Rulers

3



Glue sticks

4



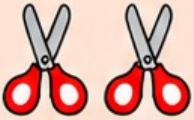
What could we add? Why?

Data decision cards 7-12

Look at the data.
Use it to decide.
Talk with a partner!

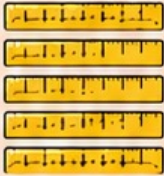
7

scissors



2

rulers



5

glue sticks

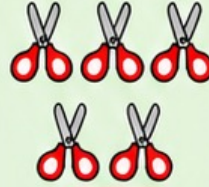


4

Which has most? How do you know?

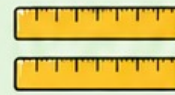
8

scissors



5

rulers



2

glue sticks

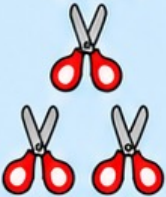


3

Which has most? How do you know?

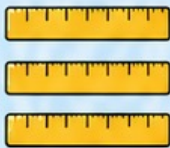
9

scissors



3

rulers



3

glue sticks



2

Which item or items are tied for most?
How do you know?

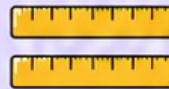
10

scissors



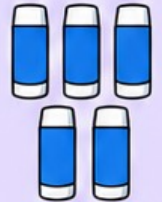
4

rulers



2

glue sticks



5

Which has most? How do you know?

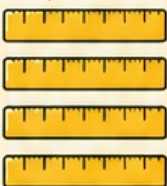
11

scissors



1

rulers



4

glue sticks

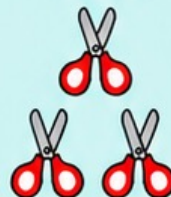


3

Which has most? How do you know?

12

scissors



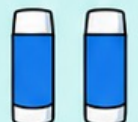
3

rulers



5

glue sticks



2

Can one period prove always?
Why or why not?

Name: _____

Data Helps
Us Decide



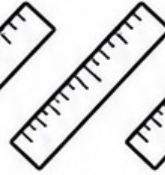
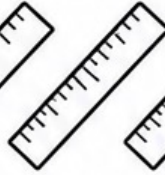
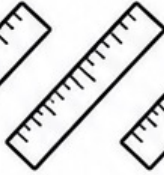
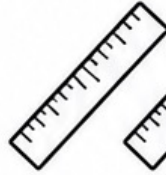
Decision and evidence – rehearsal 1

We are finding out which classroom items are borrowed (loaned).

Items we could borrow:



3 scissors



5 rulers



2 glue sticks

1 Record the loans.

Draw one picture for each loan in the table.



Scissors



Rulers



Glue sticks

2 Compare the number of loans.

How many more rulers were borrowed than scissors? _____

How many more rulers were borrowed than glue sticks? _____

3 We could add _____ because _____

4 This claim is not correct. Fix it.

Rulers are always most used.

Name: **ANSWERS**

Data Helps
Us Decide



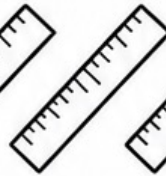
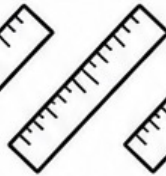
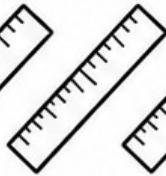
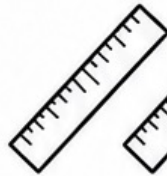
Decision and evidence — rehearsal 1

We are finding out which classroom items are borrowed (loaned).

Items we could borrow:



3 scissors



5 rulers



2 glue sticks

1 Record the loans.

Draw one picture for each loan in the table.

 Scissors	  
 Rulers	    
 Glue sticks	 

2 Compare the number of loans.

How many more rulers were borrowed than scissors? 2 more rulers than scissors

How many more rulers were borrowed than glue sticks? 3 more rulers than glue sticks

3 We could add rulers because five loans is most in this period

4 This claim is not correct. Fix it.

Rulers are always most used.

In this period rulers were most borrowed. We do not know what always happens.

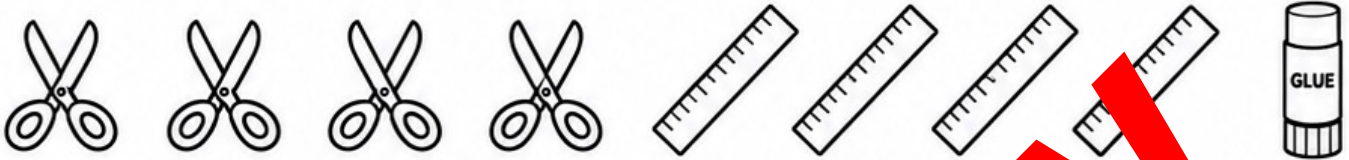
Name: _____

Data Helps Us Decide
Look. Record. Think. Decide.

Decision and evidence — rehearsal 2

We are finding out which classroom tools are borrowed. Use the information below to complete the tasks.

Items borrowed (observed):



1. Record each loan once.

Use a picture for each item. Draw the same pictures as above.

Scissors 	
Rulers 	
Glue sticks 	

2. Compare scissors and rulers.

How many of each were borrowed? What does this tell you?

3. Is there a most-borrowed tool?

Use the data to explain your answer.

4. What could we observe next before deciding what to add?

What else might we find out? Write one or more ideas.

Decision and evidence — rehearsal 2

We are finding out which classroom tools are borrowed. Use the information below to complete the tasks.

Items borrowed (observed):



1. Record each loan once.

Use a picture for each item. Draw the same pictures as above.

Scissors	    
Rulers	    
Glue sticks	 

2. Compare scissors and rulers.

How many of each were borrowed? What does this tell you?

Four scissors and four rulers: the same number of loans.

3. Is there a most-borrowed tool?

Use the data to explain your answer.

No. Scissors and rulers are tied for most at four.

4. What could we observe next before deciding what to add?

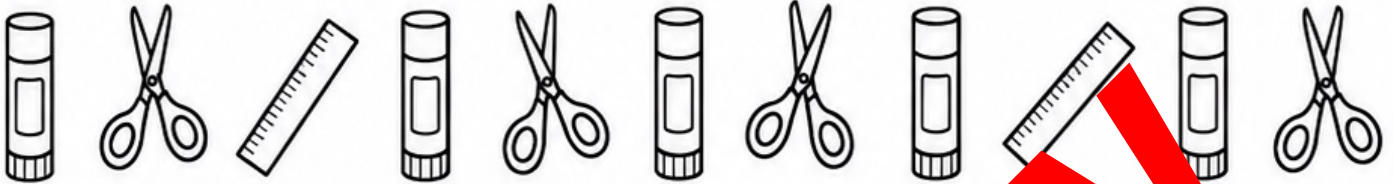
What else might we find out? Write one or more ideas.

Observe another period or ask when tools are borrowed before deciding.

Decision and evidence — assessment

Which borrowed tool should our shared tray contain more of?

Tools borrowed today:



Record the loans.

Scissors	
Rulers	
Glue sticks	

Which group has more loans? Compare it with another group.

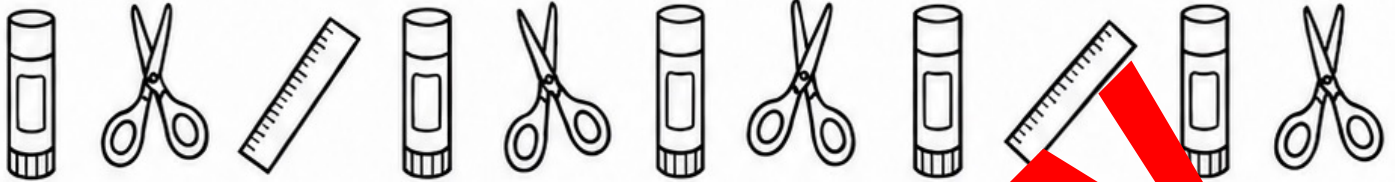
We could also _____ because _____.

Does this one observation prove what always happens? Explain.

Decision and evidence — assessment

Which **borrowed** tool should our shared tray contain more of?

Tools borrowed today:



Record the loans.

Scissors	   
Rulers	 
Glue sticks	    

Which group has more loans? Compare it with another group.

Glue sticks have 5 loans, one more than scissors and three more than rulers.

We could add **glue sticks** because **5 was the most in this period.**

Does this one observation prove what always happens? Explain.

No. One observation does not prove what will always happen.



Learning evidence rubric

Data Helps Us Decide

Use this rubric to record evidence of student learning and to identify a next step.



	Needs teaching	Developing with support	Target met independently
Concept / accuracy	Incorrect picture record.	Familiar model with prompt.	Accurate fresh record.
Application / procedure	Cannot sort-record-compare yet.	Completes with step prompt.	Sorts, records and compares independently.
Reason / evidence	Unsupported guess.	Chooses a color with prompt.	Gives comparison as evidence.
Transfer / communication	Unclear decision or always claims.	Decision with support.	Justified decision limited to this period.

Observed evidence

Targeted next step

Data Helps Us Decide



Our question and goal

Which borrowed tools should our shared tray contain more of?

Record each observed loan on _____. Compare the groups.

Suggest a choice using the ____.

Can one observation tell us what always happens?



Words we will use

Question: what we are trying to find out.

Data: what we observed and recorded.

Sort into scissors, rulers or other sticks.

More, fewer and same are your.



Watch a picture record

One fictional observation period:

Scissors: 5 separate pictures

Rulers: 3 separate pictures

Glue sticks: 4 separate pictures

One picture means one observed loan.

Our borrowed tools

Which borrowed tools should our shared tray contain more of?

		
5 scissors loans	3 ruler loans	What do 4 glue stick loans tell us?

Use the pictures to compare before deciding.



Think aloud: what do we do?

I count 5 scissors loans, 4 glue sticks and 3 ruler loans.

Five is more than four or three.

We could add scissors to our loan tray for this period.

The recorded loans can provide a



What the record does not tell us

The picture record shows which tool was borrowed more in this period.

It does not count every tool available in the tray.

It does not prove scissors will always be borrowed most.



Your turn: compare

Match each scissors picture with one glue stick picture.

Scissors:     

Glue sticks:    

Which has more? How many more?



Check your comparison

Scissors have one more observed than the all sticks.

Four pictures match. One scissors picture is left over.

Use that comparison to explain, not just to guess.



What if one more glue stick is borrowed?

Now glue stick loans become five.

Scissors: 5. Glue sticks: 5.

The two groups are the same.

Compare again when there is a change.



How to play the decision cards

Pick a challenge card and make one picture per loan.

Check for a missing or duplicated picture.

Compare groups and say what you could add, with evidence.

Your partner checks for errors and asks about the limit.



A decision challenge

A fresh card shows:

Scissors: 3 loans. Rulers: 5 loans. Glue sticks: 4 loans.

What could you add to the team?

Explain with a comparison



Correct a recording mistake

Four observed loans need four pictures.

One picture for the whole group hides the number.

A missing picture or duplicated picture can change the comparison.

Check the source before deciding.



Try a new observation

Another period shows 3 scissors, 5 rocks and 4 blue stick loans.

Make a picture for every loan.

Which group is most?

What choice fits this period?



Choose a way to show your thinking

Support: move real tokens into partially labelled rows.

Core: record, compare and decide independently.

Extension: find a missing or apply the mark or name a limit.

Every route gives evidence for the decision.



Independent assessment

Look at the new unsorted loan card.
Sort and record one picture per loan.
Compare groups and reconvene and tool.
Explain what this one observation can not prove.



Check your own evidence

- Did I record each observed loan once?
- Do my picture counts match the source?
- Does my decision answer the question?
- Did I avoid an unsupported “always” claim?



From data to decision

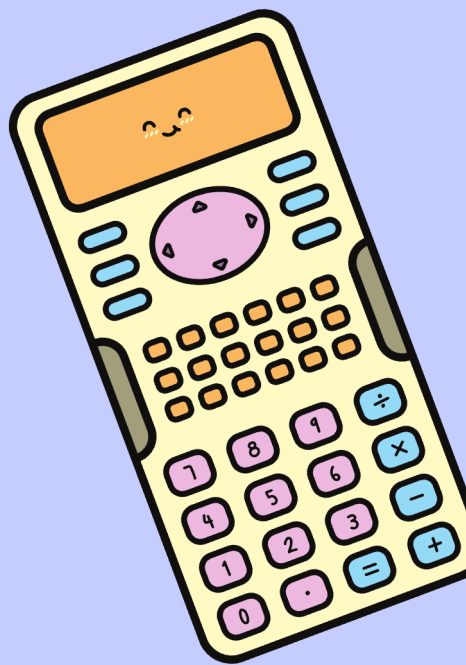
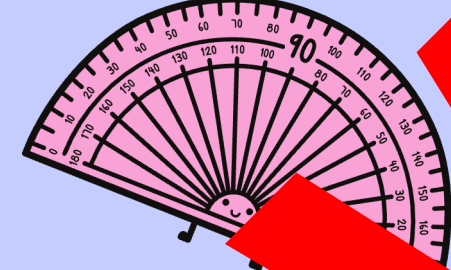
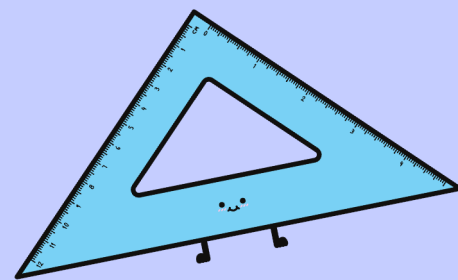
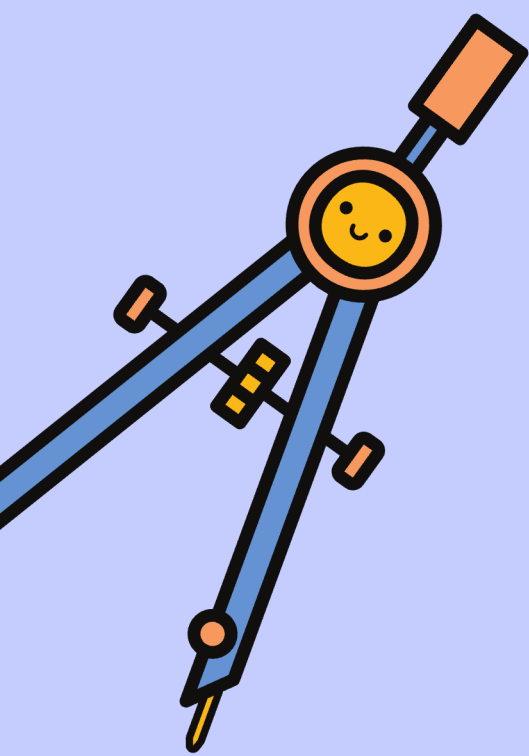
Start with the given question.

Observe and record each loan price.

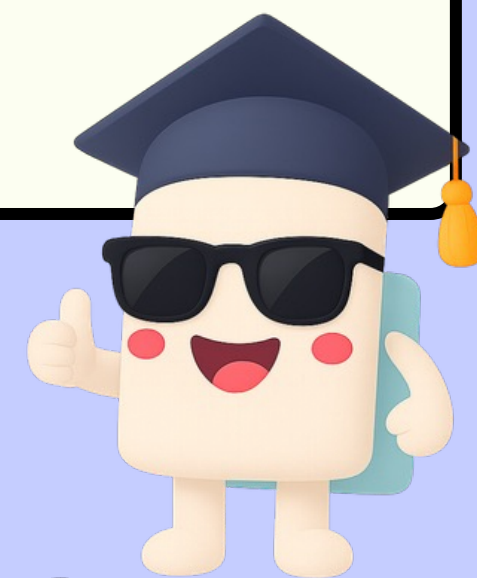
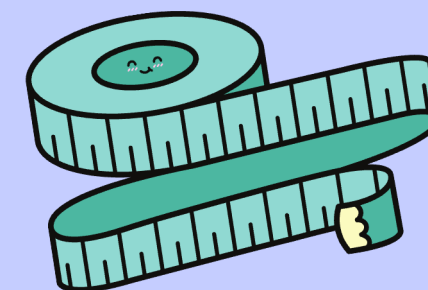
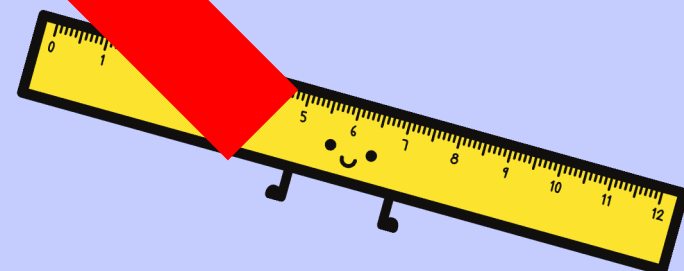
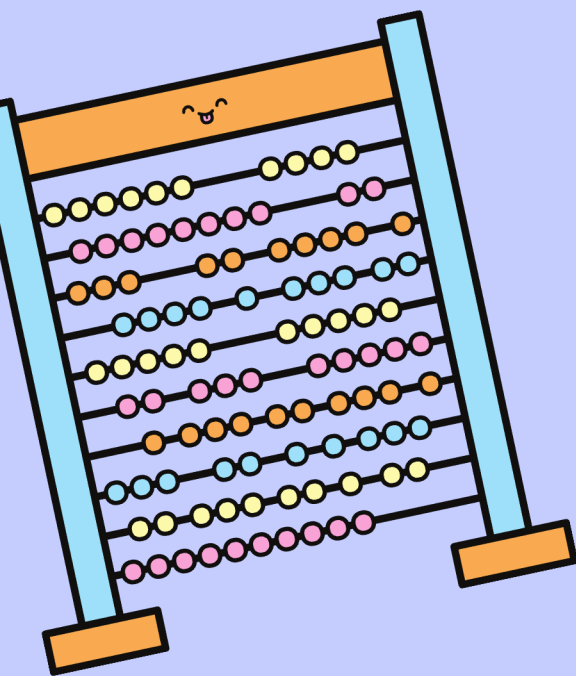
Compare the picture groups.

Make a careful choice for this period and explain why.





Well Done!
Use data to explain.



Data Helps Us Decide

Quiz



Q1 · Most borrowed

This period has 5 scissors, 3 rulers and 4 glue stick loans.

Which tool was borrowed most?



Answer . Q1

Scissors. Five loans is more than four or three.



Q2 · Give evidence

What supports a choice to add more scissors to the tray?



Answer . Q2

Five scissors loans were recorded, more than either other tool category.



Q3 . Watch the word “always”

Does this record prove scissors are always used most?



Answer . Q3

No. It describes this one recorded observation period only.



Q4 . Compare two group

Scissors have 5 picture marks and glue sticks have 4.

Which has more, and how many more?



Answer . Q1

Scissors have one more. Mark four pairs and one scissors mark remains.



Q5 · Change one observation

One more glue stick is borrowed in the same period.

Are scissors and glue sticks now more, fewer or the same?



Answer . Q5

The same: five scissors loans and five glue stick loans.



Q6 · Find the mistake

Four ruler loans were observed, but a recorder draws one ruler picture.

What is wrong? How would you fix it?



Answer . Qc

The record hides three loans. Draw four separate ruler pictures: one for each observed loan.



Q7 · Independent cards

A card shows 3 scissors, 5 rulers and 4 glue sticks.

What could we add? Give evidence.



Answer . Q7

Rulers for this period. Five ruler loans is more than four glue stick and three scissors loans.



Q8 . Compare periods

Period A: 5 scissors, 3 rulers, 4 glue sticks

Period B: 3 scissors, 5 rulers, 4 glue sticks.

What stays the same? What changes?



Answer . Qs

Both have twelve loans. Scissors are most in A; rulers are most in B.



Q9 . New case

Another period has 2 scissors, 2 rulers and 3 gummy stick loans.

What could we add to the table?



Answer . Qq

Rulers for this period. Four is the largest recorded group.



Q10 . Support Q9

Which exact comparison supports your Q9 choice?



Answer . Q10

Four ruler loans is more than three one stick loans and two scissors loans.



Q11 · Qualify a claim

Someone says “rulers are always most used”.

What can this record actually show?



Answer . Q1

Only that rulers were most borrowed in this period. Observe more periods before a wider claim.



Q12 · Final decision

New period: 4 scissors, 2 rulers, glue sticks.

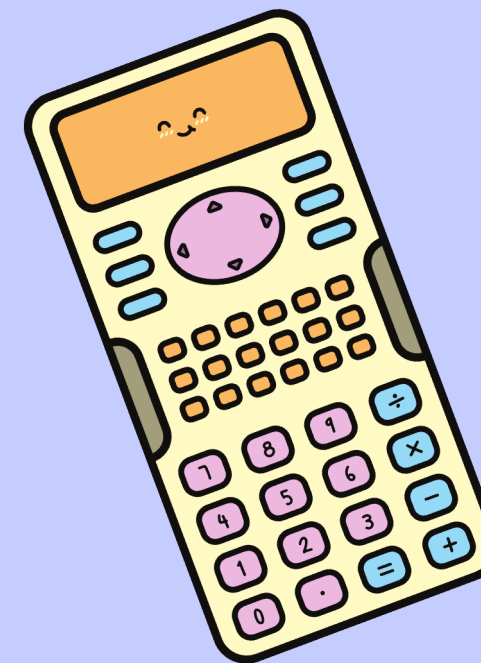
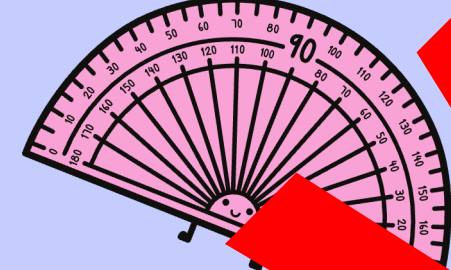
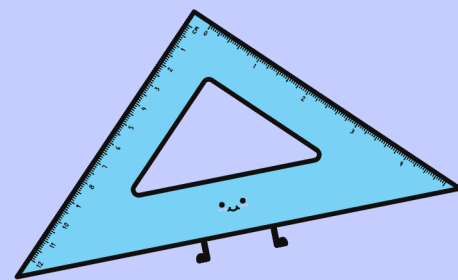
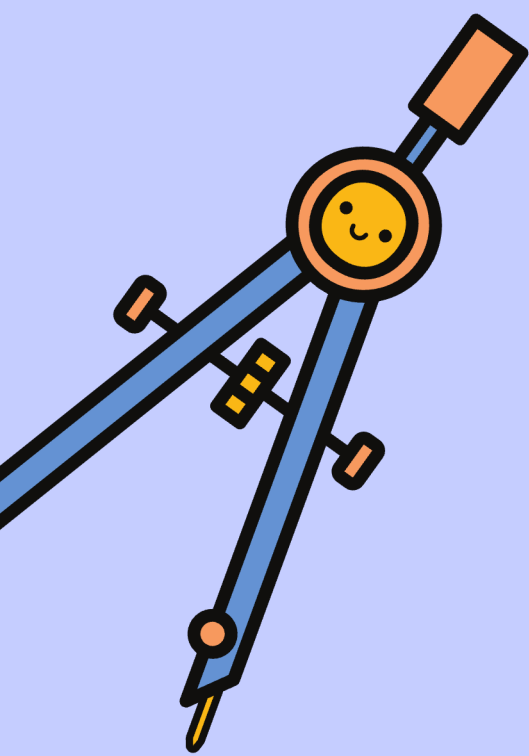
Record one mark per loan. What should we add? Explain a limit.



Answer · Q12

Five glue stick loans is more than four scissors and two rulers. Add glue sticks for this period. One period cannot be “always”.





Well Done!
Use data to explain.

