Survey Agreement

Thank you for deciding to volunteer in this research survey conducted by the Microsoft Corporation. Please note that you have no obligation to participate, and that you may decide to terminate your participation at any time.

We ask for your permission to record the information you provide in this survey for use in our research efforts. You may provide any suggestions, comments, or other feedback you wish during this survey. Your feedback and responses to survey questions are entirely voluntary. Microsoft shall be free to use, disclose, reproduce, license, or otherwise distribute, and exploit your feedback and responses. Microsoft shall own all information connected with this research project.

You represent that you have the full right and authority to sign this form. By agreeing to the conditions above, you agree to release Microsoft and its affiliates from any and all claims that you may have now or in the future related to your participation in this research project.

Please confirm your acceptance of these terms by typing your full name and the date in the spaces provided below. On behalf of Microsoft, we thank you for your contribution and look forward to having you participate in this survey.

Your full legal name

Today's Date

Gratuity

Are you a teacher in a public school?

- yes
- no

As a token of our appreciation, we will randomly select 10 winners to receive a $50 gift card.

Gratuity items will be shipped to your address and require signatures for Gift Cards. We are only able to ship gratuity items to U.S. addresses. For sweepstakes rules, please refer to: http://www.microsoft.com/usability/uxcsweeps.htm

To be eligible for our sweepstakes, you must complete survey. You must also be a U.S. Citizen or Permanent Resident with a valid Social Security Number. Only one entry into the sweepstakes will be eligible per person. In accordance with IRS regulations we are required to collect 1099 information (your address and social security number) if the suggested retail value of gratuity items that you select exceeds $599 in a given calendar year. ***We will not ask you to provide any tax information in this survey***, but will contact you before shipping your gratuity item, if necessary.

All information collected on this form will be used solely for the purposes of this survey. For our privacy statement, please see:
http://www.privacy.microsoft.com/en-US/privacystatement/

Questions regarding gratuity issues may be directed to ucsurvey@microsoft.com.
Thank You!

I have read and understood the information presented to me about gratuity distribution for this survey.

- I agree
- I do no agree with the terms

Demographic Questions

What is your gender?

- Male
- Female
- decline to specify

What is your age

- under 21
- 21-29
- 30-39

- 40-49
- 50-59
- over 60

How many years of teaching experience do you have?

- in grades k to 4
- in other grades

This year, do you primarily...

- teach in a classroom. If so, how many students:
- teach in small groups. If so, how many students:
- teach to individual students

This year, which grade do you teach?

- Grade K
- Grade 1
- Grade 2
- Grade 3
- Grade 4

Do you or your institution follow common core state standards?

- yes
- no
- unsure

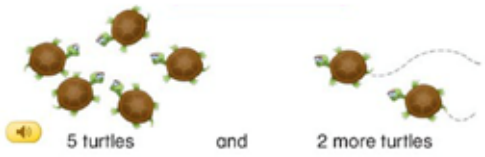
Role of Visual Material

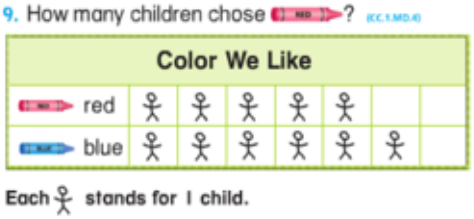
Throughout this study, **visual material** and **visualizations** refer to all visual representations that encode data (e.g. charts, graphs, maps) or information (e.g. diagrams) to illustrate, synthesize or reason about a problem.

We also refer to **interactive material** which are online websites, apps, and other software that children interact with to learn or perform exercises on a computer.

Below are a few examples of visual material:

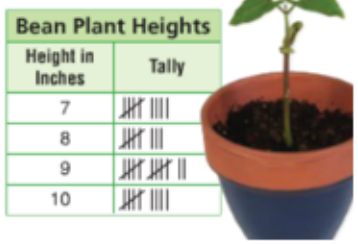
Pictographs (charts made of icons):

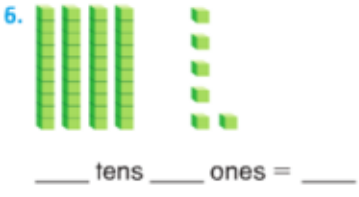




Bar charts, tally charts, histograms

In a **vertical bar graph**, the bars go up from the bottom. The height of the bar shows the number.





Maps and Diagrams

A **map key** tells what each symbol stands for. Study the map key. Find each symbol on the map. Write the number of the symbol in the correct circle on the map.

Please, give us an estimated percentage of the different **types of teaching material** you use at your grade level.
Type numerical estimated percentages (the total must be equal to 100%)

material delivered verbally	0
textual material	0
visual material	0
tangible material (physical objects)	0
digital & interactive material (apps, websites)	0
Total	0

List top 3 most important roles you believe visual materials play **when you teach.**
please check at least 1, at most 3

- [ ] serve to introduce new concepts
- [ ] reinforce learning of concepts taught with other types of material
- [ ] make abstract concepts more concrete
- [ ] make physical phenomena more abstract
- [ ] serve to illustrate problems
- [ ] engage students
- [ ] motivate students
- [ ] other(s):
- [ ] none

List top 3 most important roles you believe visual materials play **for students**.
please check at least 1, at most 3

- [ ] help students understand new concepts
- [ ] help student synthesize their knowledge
- [ ] help student reason or solving a problem
- [ ] help student communicate or explain their ideas to others
- [ ] help students with learning difficulties
- [ ] help students find novel solutions solutions for problems
- [ ] other(s):
- [ ] none

Do you think it is important to provide many diverse visual examples when teaching?

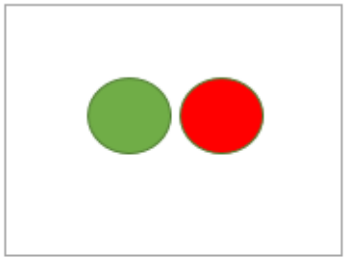
- ○ yes, because...
- ○ no, not really a couple is enough.

Teaching Strategies

The *"concreteness fading"* educational approach suggests that new concepts and procedures should be presented in three progressive forms:

(1) an enactive form, which is a physical, concrete model of the concept;
(2) an iconic form, which is a graphic or pictorial model; and finally
(3) a symbolic form, which is an abstract model of the concept.

For example, in mathematics, the quantity "two" could first be represented by two physical apples, next by a picture of two dots representing those apples, and finally by the Arabic numeral 2.



Do you employ such strategy when teaching?

- ○ Yes, all the time
- ○ Yes, most of the time
- ○ Yes, sometimes
- ○ No, not at all

What variations or alternative strategies do you employ for teaching new concepts?

Please describe the main stages/steps you follow.
You can use the example of teaching the quantity "two" as noted above.

- ○ I use something very similar to the concreteness fading approach above
- ○ I use a variation:

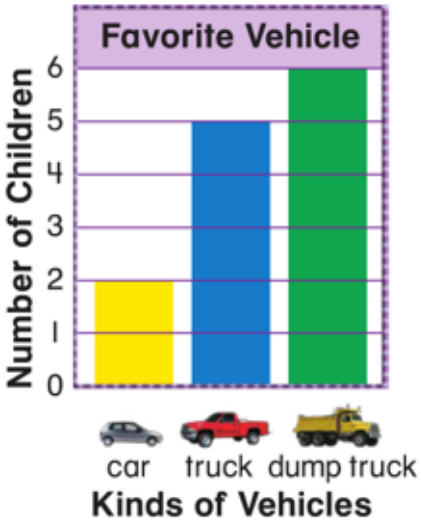
- [ ] I use a different strategy:

Below are examples of three simple charts:
Please note that the name you employ for them may vary.

Pictograph (uses icons)

Tally chart (uses shapes)

Bar chart:



Do you **explicitly** teach your students how to interpret and create charts such as pictographs, tally charts and bar charts shown above

- [ ] no, because my students are already familiar with these types of charts (taught in previous grades)
- [ ] no, because students can grasp these concepts intuitively, when learning about other subjects
- [ ] no, because
- [ ] yes, because

For the specific case of the **bar chart** shown above**,** please describe succinctly the steps you would follow when first introducing this visualization in class, and have student interpret and create it on their own.

Students Activities

What is, in your experience, the **most difficult concepts to teach** regarding the interpretation and creation of charts and diagrams?
Please enter at least 1

1
2
3

Can you describe the top 3 **mistakes students make** when they interpret or draw charts?
Please enter at least 1

1
2
3

Can you provide a rough estimate of activities students perform **with charts and diagrams**:
Please enter estimated percentages for each activity. (Should total to 100%)

teachers uses a chart/diagram to explain	0
students read a chart/diagram by themselves	0
students complete a chart/diagram	0
students create a chart/diagram from scratch	0
other:	0

Total	0

Do you believe the children exiting your grade level are adequately prepared to interpret information graphics and charts they will encounter in their daily life (e.g. in the news, in magazines or on the web) ?

- ○ Well-prepared
- ○ Somewhat prepared
- ○ Not really prepared

If you feel they are not well-prepared, what concepts do you feel are missing? Why did you not teach them?
Please explain.

Role of Interactive Material

In this section, we are interested in **interactive material,** which are on-line websites, apps, and other software thatchildren interact with to learn or perform exercises on a computer or other digital device.

List top 3 **advantages** you believe interactive material offer for teaching at your grade level.

- ☐ provide many exercises that can be completed fast
- ☐ allow easy individual progress tracking
- ☐ engage students more
- ☐ more effective for teaching
- ☐ easier to grade
- ☐ other(s):
- ☐ none

List top 3 **drawbacks** you believe interactive material have when teaching at your grade level.

- [ ] distracts students from learning the underlying concept
- [ ] limited number of examples provided
- [ ] hold students attention for only a few moments
- [ ] hard to master the interface for students
- [ ] hard to master the interface for teachers
- [ ] too much effort to set up
- [ ] too little learning value
- [ ] other(s):
- [ ] none

List top 3 **challenges** you face when intending to use interactive material.

- [ ] unable to find any good quality interactive material
- [ ] hard to find suitable interactive material for each concept in my curriculum
- [ ] lack of or limited availability of computers/tablets
- [ ] hard to control what students do
- [ ] hard to evaluate students responses
- [ ] hard to track students progress
- [ ] other(s)
- [ ] none

Sources

In this final section, we aim at collecting the different sources you rely on for teaching. Please read careful the type of material we are asking about: visual material or interactive material.

Where do you get the **visual material** you use to teach?
check all that apply

- [ ] From the textbooks I use to teach at my grade level
- [ ] From other textbooks (e.g. other grades or only used to extract visual material)
- [ ] From other print material (e.g. magazines, children's books)
- [ ] I create/edit visual material myself

- [ ] I collect visual material from other teachers
- [ ] I use on-line resources
- [ ] Other

Please name 3 textbooks you regularly use to extract **visual material:**

1
2
3

Please name 3 on-line resources you regularly use to extract **visual material**:

1
2
3

Please name 3 sources you regularly use for **interactive material:**

1
2
3

If you create or edit your own visual material, what do you use to craft these (e.g. hand written on paper, drawing software, presentation software)

Can you succinctly list the issues you face for creating or editing visual materials?

If you do not create or edit your own visual material, would you like to be able to do so? why?
Please describe why or why not in one or two sentences.