Numbers practice for architects

Worksheet 1 – Questions about numbers

What numbers could you use to describe a building or infrastructure project?

What numbers could you use to describe the job of architect?

What questions could be answered by the numbers you discussed?

How would the questions which got the following answers start? ("How often…?" etc)
- eight thousand seven hundred and seven
- three hundred and thirteen litres
- twelve foot three (inches)
- seventy three point five two kilometres
- two and three quarter hours
- nineteen seventy six
- eighty three dollars ninety nine/ eighty three dollars and ninety nine cents
- a hundred and twenty two percent
- three hundred and fifty grams
- a magnitude of seven point three on the Richter scale
- seventeen square metres
- once a week

Write the numbers above as figures.

Worksheet 2 – Numbers pairwork guessing game
Student A

Choose a number below and turn it into a question. After they guess, give hints like "No. It's much much/ much (= a lot)/ quite a lot/ a bit (= a little)/ a tiny bit… + bigger/ smaller/ higher/ lower/ longer/ more/ less/ earlier/ later (than that)" until they get it right.

1. The average salary in Florida for an architect in nineteen ninety nine was fifty five thousand and ten dollars.
2. The average salary in Florida for a *surveyor* in nineteen ninety nine was thirty six thousand five hundred and fifty dollars.
3. The average salary in Florida for *civil engineers* in nineteen ninety nine was fifty three thousand nine hundred and forty dollars.
4. Forty two percent of graduates from US architecture schools in two thousand and ten were women
5. Six percent of graduates from US architecture schools in nineteen seventy were women
6. Twenty four percent of the working architects in the US in two thousand and ten were women
7. Ancient Roman *tenement houses* had three *storeys*.
8. The heaviest stones in Stonehenge weigh forty five tonnes.
9. It took a hundred and thirty years to complete the *Cathedral* of Notre Dame in Amiens, France.
10. There are two and a half million *rivets* in the Eiffel Tower.
11. The smallest church in the world (near Covington, Kentucky, U.S.A) can only accommodate three people.
12. The Empire State Building has over ten million *bricks*.
13. There is a thirty-nine-storey *cemetery* in Sao Paulo.
14. Twenty five percent of the ten thousand three hundred *glass panels* in Boston's Hancock Tower fell to the ground between nineteen seventy one and nineteen seventy three.
15. The Empire State Building took one year and forty five days to build.
16. There are a hundred and two floors in the Empire State Building.
17. The Empire State Building has six thousand five hundred windows
18. It took seven million *man-hours* to construct the Empire State Building.
19. It took fifty seven thousand tons of steel to construct the *frame* of the Empire State Building.
20. Five people died while building the Empire State Building
21. The most expensive house in the world **(**Villa La Leopolda in Nice, France, the home of Bill Gates and now Roman Abramovich) is worth three hundred and ninety eight million three hundred and fifty thousand dollars.
22. The Eiffel Tower is repainted every seven years with fifty tons of dark brown paint.
23. The first *skyscraper* (the Home Insurance Building in Chicago) was built in eighteen eight five. It had ten storeys.
24. The Empire State Building is *struck by lightning* about a hundred times a year.
25. The Library Tower in Los Angeles is designed to withstand an earthquake of eight point three on the Richter scale.

Student B

Choose a number below and turn it into a question. After they guess, give hints like "No. It's much much/ much (= a lot)/ quite a lot/ a bit (= a little)/ a tiny bit… + bigger/ smaller/ higher/ lower/ longer/ more/ less/ earlier/ later (than that)" until they get it right.

1. Buckingham Palace has seven hundred and seventy five rooms, including seventy eight bathrooms.
2. There are one thousand five hundred and fourteen doors and seven hundred and sixty windows in Buckingham Palace.
3. There are over forty thousand *light bulbs* in Buckingham Palace.
4. Buckingham Palace's garden covers forty *acres*.
5. There are more than three hundred and fifty clocks and watches in Buckingham Palace.
6. The Golden Gate Bridge is one point seven *miles* (two point seven three seven kilometres) long, ninety *feet* (twenty seven metres) *wide*, and weighs eight hundred and eighty seven thousand tons.
7. Thirty eight painters and seventeen *ironworkers* work full time on the Golden Gate Bridge.
8. Fifty five percent of the Japanese *coastline* is covered in concrete.
9. More than half a million homes were destroyed in the Great Kanto Earthquake in Japan in ninety twenty three.
10. There are around one thousand two hundred and fifty police boxes in Tokyo.
11. The Oedo line in Tokyo cost one point four *trillion* yen to build (the most expensive underground line in the world).
12. The Great Pyramid in Egypt weighs six million six hundred and forty eight thousand tons.
13. Over one hundred and eighty stars have their handprints or footprints in the concrete of the pavement outside Mann's Chinese Theater in LA.
14. The Statue of Liberty weighs two hundred and twenty five tons.
15. There are one thousand seven hundred and ninety two steps to the top of the Eiffel Tower.
16. The Main Library at Indiana University *sinks* one inch (two point five two centimetres) every year (because the engineers failed to take into account the weight of all the books that would occupy the building).
17. Concrete was *invented* more than two thousand years ago.
18. The largest *stained-glass window* in the world (at the Kennedy International Airport in New York) is three hundred feet wide and twenty three feet high.
19. The Pentagon building has sixty eight thousand miles of *telephone lines*.
20. The Burj Khalifa in Dubai is two thousand seven hundred and sixteen feet (eight hundred and twenty eight meters) tall and has a hundred and sixty storeys
21. The Bridge of Eggs in Lima, Peru, was made with *mortar* made with ten thousand eggs (instead of water). It is over four hundred years old.

Look at both worksheets and make sure you understand all the numbers and vocabulary, for example the things in italics.

Without looking at the previous worksheets, try to remember how the following numbers are pronounced.

1999
$55,010
$36,530
42%
2010
2,500,000
10,300
102
6,500
57,000
$ 398,350,000
1885
100
8.3
1,514
350
1.7
2.737
500,000
1,400,000,000,000
6,648,000
400,000
2,716
10,000

Look back at your previous worksheets to check. Some other ways might also be possible, so check with your teacher if you pronounced them in different ways.

What are the rules for using "and" *in large numbers?*

What are the rules for using commas in large numbers?

What are the rules for pronouncing numbers after a decimal point?

Suggested answers

- eight thousand seven hundred and seven – 8307 – How many…?

- three hundred and thirteen litres – 313 l – How much…?/ How many litres (of)…?

- twelve foot three (inches) – 12' 3 (") - How long/ tall/ high/ thick/ wide…?

- seventy three point five two kilometres – 73.52 km - How long/ tall/ thick/ wide/ far…?

- two and three quarter hours – 2 3/4 hrs – How long… (does… take)?

- nineteen seventy six – 1976 - When…?/ In which year…?

- eighty three dollars ninety nine/ eighty three dollars and ninety nine cents – $83.99 - How much… (does… cost)?

- a hundred and twenty two percent – 122% - How much…?/ How many percent…?/ What percentage (of)…?

- three hundred and fifty grams – 350 grams – How much (does… weigh)?/ How many grams (does.. weigh)?/ What is the weight (of)…?

- a magnitude of seven point three on the Richter scale – How strong…?/ What point on the Richter scale…?

- seventeen square metres – 17 m2 – How big…?/ What is the area (of)…?/ How much area (does… cover)?

- once a week – How often…?/ How many times a week…?

What are the rules for using "and" in large numbers?
"And" comes between hundreds and tens, so not in the same position as commas.

What are the rules for using commas in large numbers?
Commas go after every group of three numbers and are how we show the transition from thousand to million, million to billion, etc.

What are the rules for pronouncing numbers after a decimal point?
Numbers after decimal points are pronounced one by one, so "point one hundred and twelve" would be wrong (or at least rare), it is "point one one two".