

# FORMULATING QUESTIONS

Radio Waves and the Frequency  
Spectrum

# JOBBS

When your team is ready, send the Runner for some markers and chart paper.

- **Runner** - Gets supplies. This person can leave their seat when needed.
- **Writer** - This person will write on the chart paper for the group.
- **Speaker** - This person will speak for the group when talking about the posters
- **Captain** - This person makes sure everyone is participating throughout the activity. Everyone should be contributing questions and ideas.

Remember, you might need to have 2 jobs.

# PROCEDURE

On a piece of chart paper, you and your group will be shown a prompt. Everyone will come up with as many questions about what you see as possible in the time allowed.

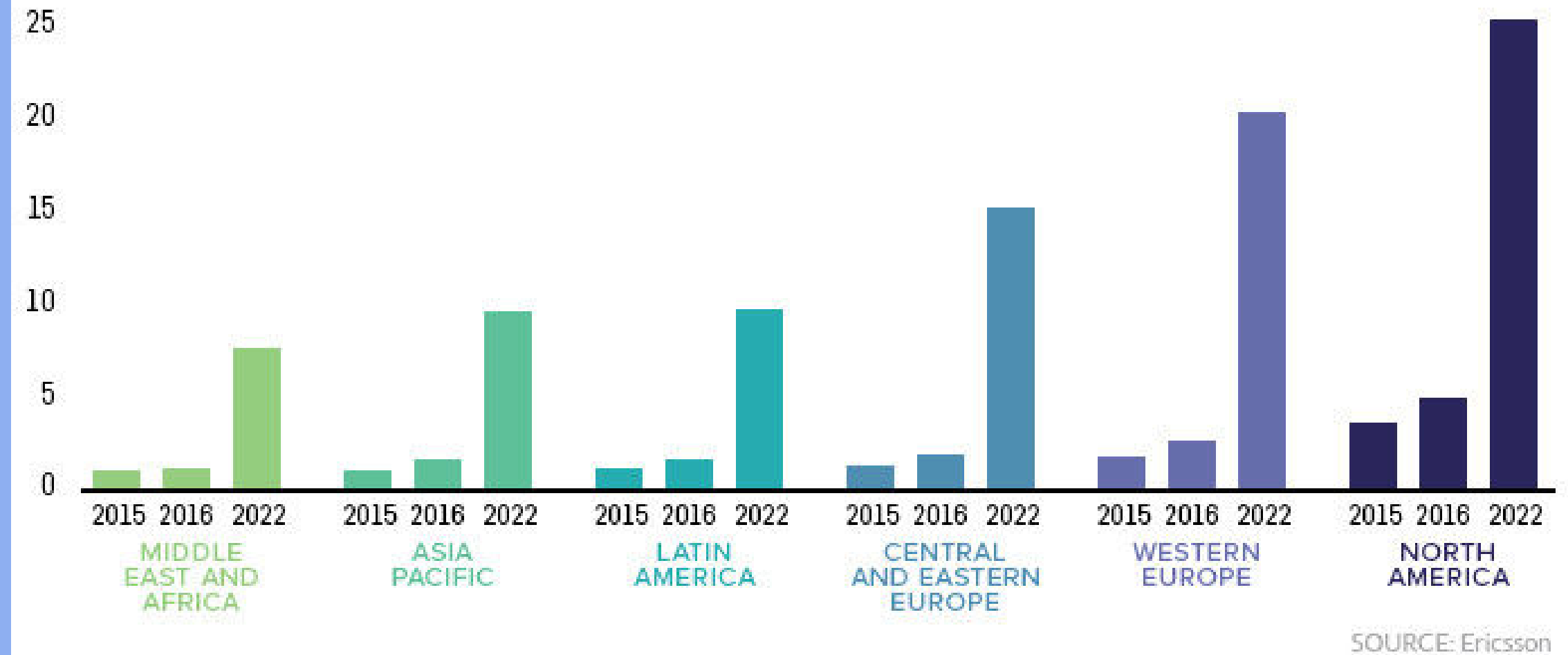
## Rules

1. Ask as many questions as you can (number as you go)
2. Do not stop to discuss, judge or answer
3. Record exactly as stated
4. Change statements into questions

# PROMPT

The radio-frequency spectrum (3 kHz to 300 GHz) in the US has been allocated to various wireless services. Most of the spectrum is already ‘full’ and in many cases the same frequency band is used for multiple

DATA TRAFFIC PER SMARTPHONE (GB / MONTH)



<https://www.weforum.org/agenda/2018/07/the-breathtaking-complexity-of-the-wireless-spectrum/>

<https://physicsworld.com/a/a-light-connected-world/>

# CATEGORIZING YOUR QUESTIONS

Categorize your questions as Closed or Open -ended

## Closed-Ended:

Answered with “yes,” “no”, or one word

Ex. What is happening to the data usage over time?

## Open-Ended:

Require longer explanation

Ex. What does location have to do with usage?

# CHANGE QUESTIONS FROM ONE TYPE TO ANOTHER

- Choose 3 closed-ended questions, and turn them into open-ended questions at the end of your list.
- Then choose 3 open-ended questions, and turn them into closed-ended.
- Number the new questions.

# STRATEGIZE & SHARE

- Prioritize your questions based on which the group found most interesting, pertinent, mysterious, etc. Pick the top 3 for your group.
- Help prepare the Speaker of your group to share the group's thought process throughout the activity and how your group came to prioritize those 3 questions.



# RESEARCH PROJECT

- Choose a question from your chart that will be interesting to research.
- The research can be presented in any medium, such as video, social media post, slide deck, newsletter, journal article, etc.
- The product must be informative, engaging, and must cite sources.

