

# Mobile phone waves animation



Mast Image:  
© osde8info 2013 mobile phone mast  
<http://www.flickr.com/photos/osde-info/8676610205/>

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1

## Learning objectives

- Identify that microwaves travel in straight lines.
- Describe how a mobile phone transmits information.
- Explain why signal can be lost in certain areas.

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Let's go through how a phone works.



It is a mobile phone mast

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When phone is off ...



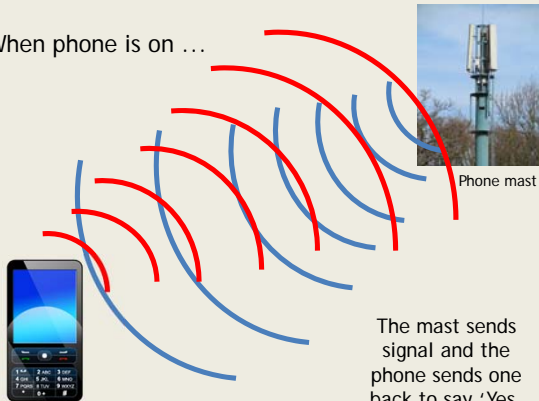
The mast sends signal but does not get one back.

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When phone is on ...



The mast sends signal and the phone sends one back to say 'Yes, I'm here!'.

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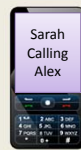
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5

Task  
Draw a picture to show how the signal travels from Sarah's phone to Alex.



Phone mast close to Sarah.



Phone mast close to Alex.



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When you call someone ...

Phone mast close to you

Phone mast close to friend

Your phone sends a signal to mast. The mast passes this on to next mast, which passes it on to your friend.

Calling Alex

Sarah Calling

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What is the problem here?

Where would be a good place to put the mast?

Hello... hello!!!... Can you hear me now?

Why can't the wave get over the hill?

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What is the problem here?

Hellllloooooo?!

Microwaves are absorbed by water molecules, so there is signal loss near the water.

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Teaching notes

This visual resource makes a great starter or revision activity for lower ability groups exploring the electromagnetic spectrum. There are questions along the way to get students thinking.

Extension  
Ask students to produce their own video or presentation to show how mobile phones work.

NB  
The waves appear automatically on each slide - if you click too early they will disappear.

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