



The Language Inside Your Brain (plural suffix ‘-s’)

Lesson Objective

In this lesson, teachers introduce children to the results of a famous psycholinguistic experiment by Jean Berko, often called ‘The Wug Test’ (Berko, 1958). Children will do some of the actual test items themselves. The test items target the plural suffix ‘-s’.

Berko’s investigation demonstrates how young children internalise rules for forming the plural in English, and is a fun way to show children how cognitive scientists try to find out what our brains know about language.

This lesson can be used in conjunction with a **linked writing activity** working on character description or with a **linked lesson about reading and spelling the plural suffix ‘-s’**. These skills can also be transferred to reading and spelling the third person singular verb-subject agreement suffix ‘-s’ (e.g., he runs, she throws). Instructions for both these activities are given after this lesson.

Note: Letter names are referred to using single quotes (e.g., ‘s’), while sounds that letters make are referred to using slant brackets (e.g., /s/). We have avoided using international phonetic symbols for these sounds, choosing instead common English spellings when possible (e.g., /ng/ for the sound at the end of ‘bang’). We do, however, use the symbol schwa /ə/ to represent the English vowel sound that typically occurs in unstressed syllables, because this sound can be spelled in many different ways (e.g., mountain, telephone, again, computer, teacher).

Teacher		Students
Slide 1	<p>Today we are going to find out how clever your brains are. There are lots of things our brains know how to do for us, and some of them are things we don’t even know we know!</p> <p>Click to reveal boy’s question: This boy is asking, “How do I know how to talk?” What do you think our brains need to know for us to be able to talk? (e.g., we need to know words, we need to know how to put the words together into sentences, we need to know how to say the words using our mouth, tongue, lips, etc)</p> <p>Click to reveal girl’s exclamation: This girl is saying, “Let’s find out!” Let’s find out about one important thing our brains know for us to be able to talk. To do that, we are going to meet some imaginary creatures. Ready?</p>	individual children respond

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Slide 2	<p>Look, this is a wug. Can you all say that? A... wug.</p> <p>What does a wug look like?</p> <p>A wug sure is a funny creature.</p>	<p>wug</p> <p>individual children respond</p>
Slide 3	<p>Oh, look. Now there are two of them. There are two... Children should easily supply the plural form.</p> <p>Yes. What did you say? Let's listen again. There are two...</p> <p>Oh, right. There are two wugs. Emphasise the last sound /z/ as you say 'wugs'.</p> <p>Hmmm, you added a sound to 'wug' when there were two of them. Listen again.</p> <p>Point to one wug as you say: One wug. Point to both wugs as you say: Two wugs.</p> <p>What sound did you add? Two wug-/z/. What sound?</p> <p>Look amazed. How did you know how to do that? Act suspicious. Have you ever seen a wug before? Have you ever said the word 'wug' before? Have you ever said the word 'wugs' before?</p> <p>But you all agree that we say 'two wug-/z/'. That's what everyone said, right?</p> <p>Wow! Your brain knew what to do, even though you had never heard of a wug before. Amazing!</p>	<p>wugs</p> <p>wugs!</p> <p>/z/</p> <p>no</p> <p>no</p> <p>no</p> <p>yes</p>
Slide 4	<p>Now let's look at another imaginary creature. This is a bik. Can you all say that? A... bik.</p> <p>What does a bik look like?</p> <p>A bik is another really funny creature.</p>	<p>bik</p> <p>individual children respond</p>
Slide 5	<p>Oh, look. Now there are two of them. There are two... Children should easily supply the plural form.</p> <p>Yes. What did you say? Let's listen again. There are two...</p>	<p>biks</p> <p>biks!</p>

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	<p>Oh, right. There are two biks. Emphasise the last sound /s/ as you say 'biks'.</p> <p>You did it again. You added a sound to 'bik' when there were two of them. Listen again.</p> <p>Point to one bik as you say: One bik. Point to both biks as you say: Two biks.</p> <p>But wait a minute. I'm not sure it's the same sound as before. What sound did you add? Let's listen. One bik. Two...</p> <p>Two bik-/s/. What sound?</p> <p>Look amazed again. But that's not the same sound you used for 'wugs'. How did you know how to do THAT? Act suspicious again. Have you ever seen a bik before? Have you ever said the word 'bik' before? Have you ever said the word 'biks' before?</p> <p>But you all agree that we say 'two bik-/s/'. That's what everyone said, right?</p> <p>Wow! Your brain knew it had to do something different, even though you had never heard of a bik before. That's even more amazing!</p>	<p>biks</p> <p>/s/</p> <p>no</p> <p>no</p> <p>no</p> <p>yes</p>
Slide 6	<p>Let's look at one more imaginary creature. This is a cray. Can you all say that? A... cray.</p> <p>What does a cray look like?</p> <p>A cray is another really funny creature.</p>	<p>cray</p> <p>individual children respond</p>
Slide 7	<p>Oh, look. Now there are two of them. There are two... Children should easily supply the plural form.</p> <p>Yes. What did you say? Let's listen again. There are two... Oh, right. There are two crays. Emphasise the last sound /z/ as you say 'crays'.</p> <p>Let's see what sound you added this time. Listen again. Point to one cray as you say: One cray. Point to both crays as you say: Two crays.</p>	<p>crays</p> <p>crays!</p>

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	<p>Wait a minute. Was it a /s/ or a /z/ this time? Let's listen. One cray. Two...</p> <p>Two cray-/z/. What sound?</p> <p>Look amazed again. Your brains are so clever! How did you know how to do THAT? Act suspicious again. Have you ever seen a cray before? Have you ever said the word 'cray' before? Have you ever said the word 'crays' before?</p> <p>But you all agree that we say 'two cray-/z/'. That's what everyone said, right?</p> <p>Wow! So sometimes we choose /s/ for two or more things. What sound?</p> <p>And sometimes we choose /z/. What sound?</p> <p>How do we know which one to choose? Do we have to remember whether it is /s/ or /z/ for every word we ever hear?</p>	<p>crays</p> <p>/z/</p> <p>no no no</p> <p>yes</p> <p>/s/</p> <p>/z/</p>
Slide 8	<p>Let's see. Here is a zebra. Maybe you learned that when there are two, you say two...</p> <p>Zebra - /z/. What sound?</p> <p>Ok, remember: /z/ for zebras.</p> <p>Now, here is an elephant. Maybe you learned that when there are two, you say two...</p> <p>Elephant - /s/. What sound?</p> <p>Ok, remember: /s/ for elephants.</p> <p>And here is a giraffe. If there are two, you say...</p> <p>Giraffe - /s/. What sound?</p> <p>Ok, remember that too. We use /s/ for giraffes.</p>	<p>zebras</p> <p>/z/</p> <p>elephants</p> <p>/s/</p> <p>giraffes</p> <p>/s/</p>

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Slide 9	<p>Act worried.</p> <p>Ooh, this is getting tricky. I don't know if I can remember this for every animal in the world. And what if I don't know the name of an animal? What happens then?</p>	
Slide 10	<p>We just found out what happens. We found out by making up animals that we are sure nobody has ever heard of before. Animals like a wug and a bik and a cray.</p> <p>It turns out you knew what to call two of these animals, even though you had never heard of them before.</p> <p>Point to the relevant creature as you say: One wug, two... One bik, two... One cray, two...</p> <p>Act relieved.</p> <p>Phew! Luckily, we don't have to remember which sound to use every time we want to talk about more than one of something. Our brains just know what to do. They have learnt a rule.</p> <p>They know a rule for talking about two of something. And you didn't even know it!</p>	<p>wugs biks crays</p>
Slide 11	<p>Scientists can find out about the language rules our brains know by doing tests like this one. We call this the Wug Test. Maybe you would like to be a Wug Scientist one day!</p>	

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Notes on English plural rules

Bik: We form the plural of words ending in /p/, /t/, /k/, /f/ and unvoiced /th/ (as in 'moth') by adding /s/. Hence, the imaginary word 'bik' becomes 'bik/s/'. In fact, we have no choice but to add /s/, due to the physical constraints of pronouncing such sounds together. We never pronounce clusters like /kz/ in any English words.

Wug: We form the plural of words ending in /b/, /d/, /g/, /v/, /m/, /ng/ and voiced /th/ (as in 'clothes') by adding /z/. Hence, the imaginary word 'wug' becomes 'wug/z/'. Again, this is due to the physical constraints of pronouncing such sounds together. We never pronounce clusters like /gs/ in any English words.

Cray: We also form the plural of words ending in /l/, /n/, /r/ or any vowel sound by adding /z/. However, in these cases, there is no global constraint on pronunciation. For example, it is possible to say both 'purrs' /purz/ and 'purse' /purs/, 'hens' /henz/ and hence' /hens/. This means the imaginary word 'cray' (ending in the vowel sound /ai/) could potentially become 'cray/z/' or 'cray/s/'. But if children have learnt a rule specifically about forming the plural, then they should add /z/, not /s/. Strikingly, this is exactly what they do.

Berko, J. (1958). The child's learning of English morphology. *WORD*, 14:2-3, 150-177, doi: 10.1080/00437956.1958.11659661

Writing activity

Lesson Objective: Children reinforce the notion of the plural suffix orally and then work on writing a character description using appropriate adjectives.

1. Invite children to work in groups, pairs or individually to draw their own imaginary creature.
2. Ask them to invent a funny name for their creature and help them to label their drawing, providing the spelling.

Note: some names children choose may end in the sounds /ch/, /dj/, /sh/, /s/, /z/ or /zh/ (the last sound in the word 'garage'). These names will take the plural ending 'es' (e.g., one 'brish', two 'brishes'). Teachers can point out that there is a third sound our brains sometimes choose for the plural (/əz/) and we know the rule for that too.

3. Children can present their creatures to the class and test each other on what the plural name for their creature would be.
4. Ask children to write a description of their imaginary creature.

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Plural suffix '-s' reading and spelling lesson

Lesson Objective

Children work on learning to read and spell the plural suffix '-s' in English. The skills taught here can also be transferred to reading and spelling the third person singular subject-verb agreement suffix '-s' (e.g., he drinkss, she drawss).

Teacher	Students
<p>1</p> <p>Terminology: Plurals You are all very clever. You knew how to talk about more than one imaginary creature even though you had never seen them before. You knew that we say: one bik and two...</p> <p>Two biks, that's right. When we talk about more than one thing, it is called the plural. What is it called?</p>	<p>biks</p> <p>the plural</p>
<p>2</p> <p>The plural of bik is... The plural of cat is... The plural of hat is... What do we call it when we talk about more than thing? The...</p>	<p>biks cats hats plural!</p>
<p>3</p> <p>Writing Plurals What sound do we hear at the end of 'biks' and 'cats' and 'hats'? Emphasise the /s/ sound at the end of each word.</p>	<p>/s/</p>
<p>4</p> <p>Yes, we hear /s/. What letter makes the sound /s/? If children identify the letter 'c', acknowledge that 'c' can make the sound /s/ and ask if any other letter makes the sound /s/.</p>	<p>'s'</p>
<p>5</p> <p>We will use the letter 's' to write the plural. Write the word 'cat' on the board. Read this word with me. Cat. Help children sound out the word letter by letter if necessary.</p> <p>Write the word 'cats' on the board and underline 's'. Read this word with me. Cats.</p> <p>Point to 's'. When we write a plural, we add the letter 's' to show that we mean more than one. What letter?</p>	<p>cat</p> <p>cats</p> <p>'s'</p>
<p>6</p> <p>Terminology: Suffix A letter or letters that we add to the end of a word to change its meaning or the way we use it in a sentence has a special name. We call it a suffix. What is it called?</p>	<p>a suffix</p>

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7	<p>Point to the 's' of 'cats' again. This letter 's' is a suffix. If we add the letter 's' to a word like 'cat', then we change the number of things we are talking about. Remember, a suffix changes the meaning of a word or the way we use it. Say that word again with me. Suffix.</p>	suffix
8	<p>Guided practice Write the word 'hat' on the board. Read with me. Hat. What do we need to add to this word to make it plural? That's right. We need to add the suffix 's' to show it is a plural. Call on a child to add the letter 's' in a different colour. Read the new word with me. Hats.</p>	hat 's' hats
9	<p>Write the word 'bug' on the board. Now read this word with me. Bug. We will add the letter 's' to make this word plural too. Add 's' in a different colour.</p> <p>Read the new word with me. Bugs. What sound can we hear at the end of 'bugs'? Bug-/z/. Emphasise the /z/ sound. What sound?</p> <p>That's right, we hear /z/. Sometimes the plural sounds like /s/ and sometimes it sounds like /z/. Your brain knows what to say. But we always write it the same way. Point to the letter 's' in 'bugs'. How do we write it? With the letter...</p>	bug bugs /z/ 's'
10	<p>Independent practice Now it's your turn to write some plural words. Students can work in exercise books or on student whiteboards.</p>	
11	<p>Write the word 'cat'. What word? Ask children to say the sounds (/k/ /a/ /t/) as they write if necessary.</p>	cat
12	<p>Let's add a suffix to your word to make it a plural. Write the letter you need to change 'cat' to 'cats'.</p> <p>What letter did you add?</p> <p>Show me your work. Check children's work and provide feedback. Read the word with me. Cats.</p>	children write 's' 's' cats

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13	<p>Repeat Steps 10-12 with the following words, reducing support when children are ready.</p> <p>pet, rug, pin, bat, dog</p> <p>Point out that the plural sounds like /s/ in 'pet' and 'bat' and like /z/ in 'rug', 'pin' and 'dog', but that we always write it using the letter 's'.</p>	
14	<p>Throughout the day</p> <p>Point out plurals taking the suffix '-s' in material being read throughout the day.</p>	