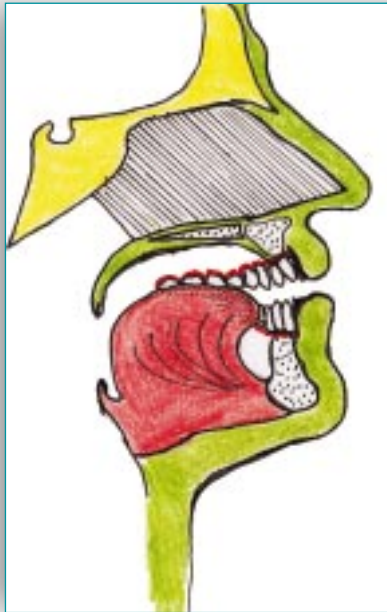


UNIT 2

Our Masticatory System





A Introduction to our Masticatory System: Our head

It is important to realize that the general growth and development of a human being is closely related with the growth and development of the whole body. Therefore, the more we know about our body, the better it is.

It may come to you as a surprise that the first to comment on the craniofacial deformities was Hippocrates (460-377 B.C.), a Greek doctor from Kos island in Ancient Greece. Since then, medical science and dental laboratories are interested in correcting dental irregularities and guarantee an as good occlusion as possible. Naturally, people do not only wish their dental occlusion to be effective. They wish it to be aesthetically harmonious. How many children have been made fun of by their classmates because of their malocclusion, or to put in another way, because of their “distorted” teeth?

Many influences contribute to the development of our masticatory system and masticatory organs. Although it may look as if our primary interest is concerned with the relations of tooth crowns to each other, we cannot ignore the way the whole masticatory apparatus functions as a whole. Naturally, everybody knows where our masticatory organs are located: in our head!

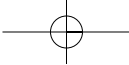
Our head is relatively large at birth, compared to our face. Our face then forms one-eighth of the bulk of our head. In the adult life, however, it forms one-third to one-half of the bulk. Our head may be sub-divided in two parts:

1. The cranium and its base. Our upper jaw which is firmly attached to it, is part of the cranium too. Formally, our upper jaw is called maxilla.
2. The face and the lower jaw or mandible, as it is called formally.

We will look at our head in some detail because, as it was mentioned in the beginning, deformities in the way our teeth occlude are determined by:

- a) The quality of bones in our face and their appropriate development.
- b) The quality of the alveolar part of our jaws specifically, which is important in providing sufficient space not only for the accommodation of our first teeth (we all know that young kids shed their teeth), but also the accommodation of our permanent teeth.
- c) The position of every tooth separately in the alveolar bones and its relationship to its neighbouring teeth.
- d) The forces that guide the growing of our teeth.





- e) The forces that start working when the teeth of the upper jaw contact the teeth of the lower jaw.

Peter's mother has drawn some pictures of the bones of our head. She tried to make our head look pretty, even when our fleshy part is not there. In the second picture, she put some flesh so that our head looks more alive. In the third, and fourth picture, she drew our two jaws with our teeth in occlusion position and our lower jaw, which is the part of our head that moves upward, downward, forward, leftward, rightward.

Task 1

Look at pictures 2.1, 2.2, 2.3 and 2.4. You will see the English word relevant to the part of our head in a box, but the Greek translation is missing. You know more than we do on human and dental anatomy. Write the Greek translation under the English word in the labels referring to the pictures and in the boxes below:

1. occlusion: contact between teeth in the upper jaw with teeth in the lower jaw.

En: occlusion
Gr:

2. harmonious: Greek word, something which is pleasant, friendly, and peaceful.

En: harmonious
Gr:

3. cranium : Greek word, the bones that protect our brain.

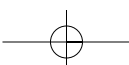
En: cranium
Gr:

4. maxilla : the part of a bone in our head where the upper teeth are fixed.

En: maxilla
Gr:

5. mandible : the part of a bone in our head where the lower teeth are fixed.

En: mandible
Gr:





6. epiglottis: Greek word, part of our tongue at its far back, which closes when we swallow our food so that food does not go to the part of our throat we breath with.

En: epiglottis
Gr:

7. uvula: the end of our soft palate that hangs loose over the beginning of the canal through which we breath.

En: uvula
Gr:

8. palate: the top part of the inside of our mouth which is hard in the front part, and soft in the back part.

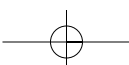
En: palate
Gr:

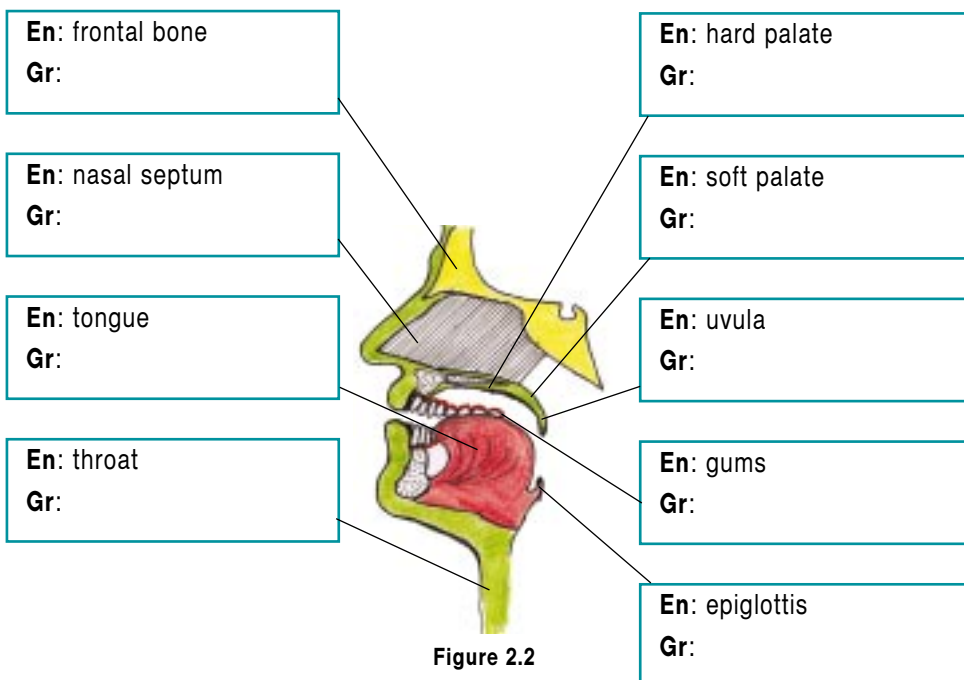
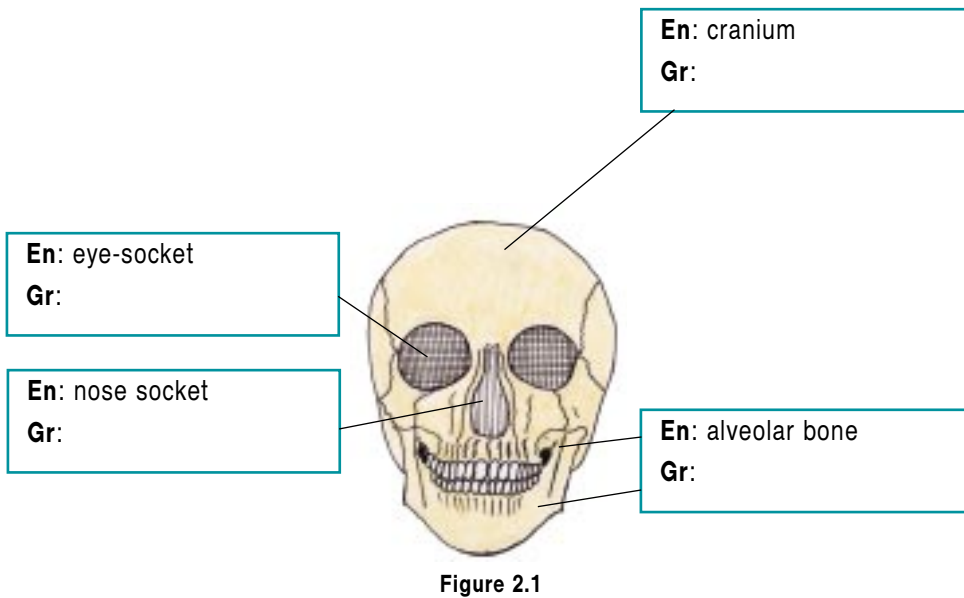
9. socket: an opening which is hollow so that another part fits in.

En: socket
Gr:

10. alveolar bone: the bone where the roots of out teeth fit in.

En: alveolar bone
Gr:





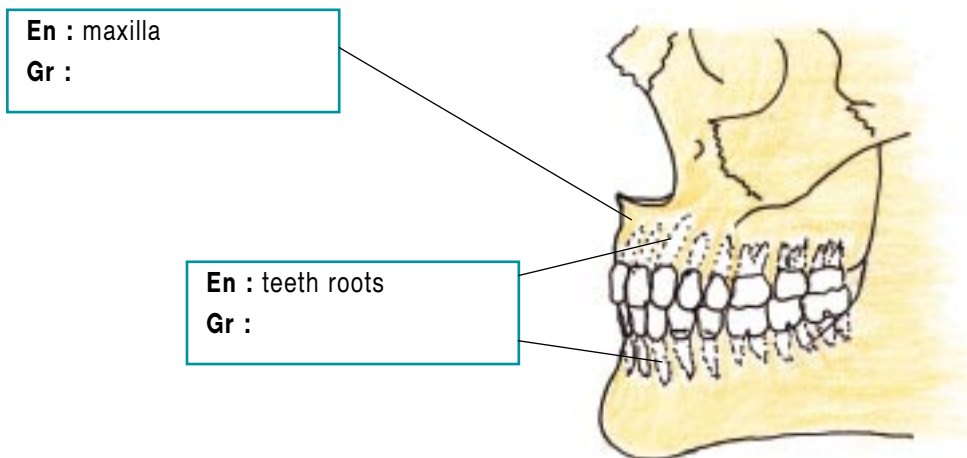


Figure 2.3

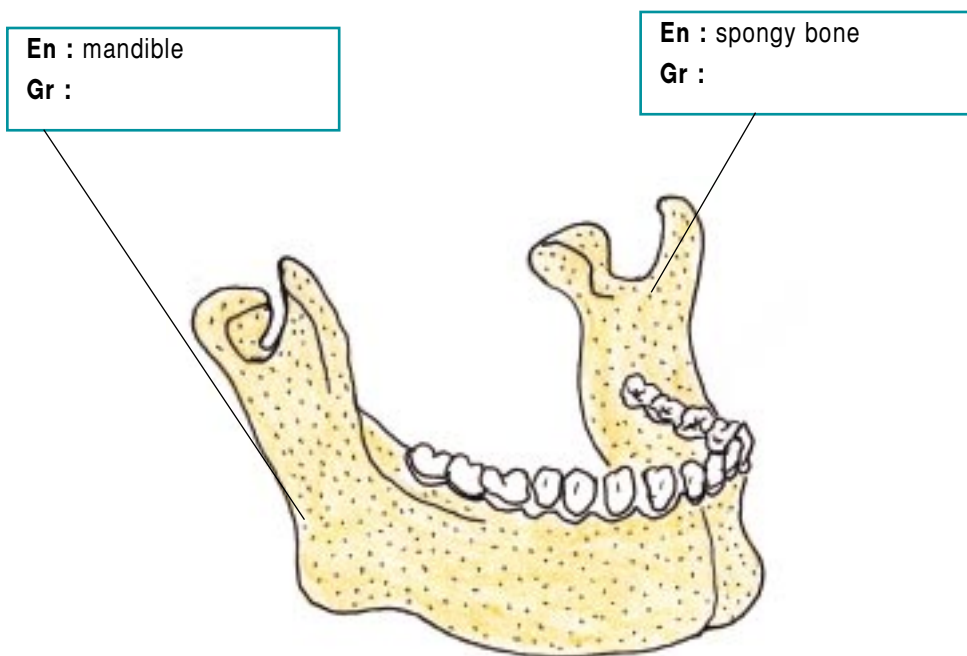


Figure 2.4

B More on our masticatory system: A class in TEE

Athina, who is attending TEE right now, and wants to become an actress, wishes to know more about our masticatory system. She asks her teacher a few questions. Here is the dialogue between Athina and her teacher.

- ATHINA: You said that the mandible is free to move in order to chew our food, right?
- TEACHER: That's right.
- ATHINA: Why the other onewhat's the name?
- TEACHER: Maxilla, you can call it upper jaw if you wish.
- ATHINA: Fine. The upper jaw. Why doesn't the upper jaw move?
- ARIS(CLASSMATE):(interrupting). That's a silly question!
- TEACHER: No, it's not. There is a reason why the upper jaw does not move. It serves a purpose. It provides the necessary steady support and resistance, for the pressure of our chewing movements like the rest of our masticatory organs do.
- ATHINA: Thank you, I understand. It's like a factory, like the oil-press my uncle has in Lamia.
- TEACHER: Quite right. You must remember that when we are born, the two halves of the mandible, are united in the midline by a suture, a kind of seam, which closes by the age of one year. Now, here's a question for you to answer. You, the young boy that teased Athina a while ago. You're Aris aren't you?
- ARIS: Yes, Sir.
- TEACHER: Do your upper teeth occupy an arch of a greater size than your lower teeth?
- ARIS: ...Mm...
- TEACHER: Do your upper teeth touch your lower teeth? Try it!
- ARIS: Yes, they do..... the arches are of equal size.
- CLASS: No! Yes! No!
- TEACHER: Hold on! If our upper teeth occupied an arch of similar size, we would not be able to chew, crush, and grind, even swallow our food. The two arches are not the same in size. The upper arch is of a greater size. In this way, an overbite exists between the upper and lower teeth. Can you feel the overbite between the two arches of your teeth?

CLASS: Yes!

TEACHER: Open your mouth! Close it! Open it! Close it! Now, think! When your teeth are occluded, are their surfaces in both jaws precisely defined, or do they change every time you open and close your mouth?

CLASS: They have fixed points of contact.

TEACHER: Very good! What about our tongue?

ATHINA: It moves all the time.

ARIS: That's because she talks and chews her gum non-stop.

TEACHER: (interrupts both of them). Well, in a way, I agree with Athina. She's right. A big part of our tongue can move, but usually our tongue, when at rest, occupies the lower part of our mouth cavity between our two gum pads. Our gum pads are separated by our tongue, which sticks a bit out over our lower gum pad. What we said about our teeth arches, is also true of the gum pads, which form together with the roots of our teeth two arches which are called alveolar arches. The upper arch is wider in size than the lower arch. What shape does it remind you of? Look at the pictures and feel your teeth as well.

ARIS: A horse-shoe. I think that the alveolar arches, our teeth and gum pads are formed, more or less, in a horse-shoe shape.

TEACHER: Quite right.

ATHINA: Do people fix horse-shoes on a donkey's nails too?

TEACHER: What a question! Come on Athina. It's time for a break.

Time for fun

Task 1

Here is a crossword puzzle for you to play. It is not a usual crossword. There is not only one correct answer. The point is to find words related to the word down in terms of meaning. Any word is correct, but one letter of the word you will put in the crossword must be one of the letters contained in the word down, 'masticatory' in our case. You cannot use a word twice. The first word is done for you.

Crossword Puzzle

									m									
									a									
									s									
									t									
									i									
									c									
									a									
									t									
									o									
									r									
								s	y	s	t	e	m					

Task 2

It's still break time. Athina, Lily, Peter, and the classmate who likes to tease and interrupt Athina (his name is Aris : Aristotle) is with them. It has been a difficult school day, and they feel a bit like escaping from reality. They talk about plans in distant future. Athina talks to Aris (the rest just watch at first).

ATHINA: You like to interrupt me, don't you? Listen to this. One day I'm sure I'll be a famous actress. Then I'll go wherever I wish, I'll buy expensive clothes, and wear a different kind of colour of shoes to match my dress and ...

ARIS: And you'll drive an expensive sports car, and buy a villa with a swimming

pool, you'll hire body guards, and you'll marry a rich millionaire husband in the end.

ATHINA: Don't spoil my dreams, you are jealous of me.

ARIS: I'm not spoiling your dreams. I'm simply saying that you are daydreaming a lot, and that you are neglecting your studies. There's nothing about making fun of you.

ATHINA: All right, I'm sorry.

PETER: (interrupting) Hey, Lily, tell us about yourself.

LILY: Well, I don't know. I think I'll travel a lot in the future, I'll meet interesting people, I'll not live in Greece.

ARIS: Tell us more, you're hiding something.

LILY: No, I'm not. A fortune teller told me once I'll move to a far away land, eat exotic food and things like that. What about you Aris?

ARIS: Me? I'll do a lot in my life. I'll probably buy a big house with a big garden. Many people will come to visit me. I'll give many parties. I'll enjoy life as much as I can. What do you say Peter?

PETER: Your ideas are fantastic. Go ahead! Make your plans come true!



Note 1. When we talk about our plans in distant future or make thoughts about what will happen but nothing has been fixed permanently yet, then we use the patterns:

Affirmative Form (Καταφατικός Τύπος)

Column 1	Column 2	Column 3	
I *you he she it we *you they	will or 'll (shall in I, we: rarely)	..... ..... ..... ..... ..... ..... ..... .....	the activity or action or state.

* you is the same both when we talk about one person or more persons.

Example: I will drive an expensive car.

Note 2. When we wish to ask questions we invert columns 1 and 2 of the Affirmative form. We also put a question-mark in the end.

Question Form (Ερωτηματικός Τύπος)

Column 1	Column 2	Column 3		
will or 'll (shall in I, we: rarely)	I	the activity or action or state.	?
	*you	.....	
	he	.....	
	she	.....	
	it	.....	
	we	.....	
	*you	.....	
	they	.....	

* you is the same both when we talk about one person or more persons.

Example: Will I drive an expensive car?

Note 3. When we wish to make negative sentences, we add **not** (let's call it **columnn +**) between column 2 and column 3 of the Affirmative Form.

Negative Form (Αρνητικός Τύπος)

Column 1	Column 2	Columnn +	Column 3	
I	will or 'll (shall in I, we: rarely)	not	the activity or action or state.
*you			.....
he			.....
she			.....
it			.....
we			.....
*you			.....
they			.....

* you is the same both when we talk about one person or more persons.

Example: I will not drive an expensive car

Note 4. In Grammar language this formula **will +** is called **Future Tense Simple**

Now, go around your classroom and ask 10 of your classmates about their plans in the distant future. Write the names of your classmates in a column on the left, and in a second column say what they will do. Do you see any similarities?

Column 1	Column 2
Names	Things your classmates will do
1. Nick →	
2. Kiki →	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Task 3

When we make descriptions, we talk about certain qualities or characteristics of persons, things, animals, objects, phenomena, situations, etc. Words like dental, modern, clean, old, dirty are what we call in grammar adjectives. They talk about the kind or the quality or a characteristic of something. When we refer to the qualities or the characteristics of other words, we can make comparisons. The patterns we follow to make comparisons are described below.

Note 1. We add **-er** to the adjective, and the word **than** after it. This happens only when the adjective does not have more than two syllables. If it has more syllables, we put the word **more** in front of the adjective. When we make comparisons we discover that one of the compared objects, animals, people or whatever has the quality we are interested in to a degree that leaves all the others behind. Then we add **-est** to the adjective and the word **the** in

front of the adjective if we are referring to a two-syllabled adjective. Otherwise, we add **most** in front of an adjective with more syllables.

Example (a):

1. An old laboratory (set up in 1980 by Peter's mother).
2. Another old laboratory (set up in 1985 by George, a friend of Peter's mother).
3. The laboratory of Peter's mother is **older than** George's laboratory.
4. George's friend Tim has a laboratory too. It was set up in 1987.
5. The laboratory of Peter's mother is **the oldest** of all.

Example (b) :

1. Tim's laboratory is modern.
2. Suzy's laboratory was set up in 1990. Suzy's laboratory is **more** modern **than** Tim's.
3. Jim's laboratory was set up in 2000. Jim's laboratory is **the most** modern of all.

Note 2. If we wish to start from 1987 and go backwards and start from Tim's laboratory, this is what formula we use:

1. Tim's laboratory is old. It was set up in 1987.
2. George's laboratory is old too, but it was set up in 1985.
3. Peter's mother laboratory was set up in 1980.
4. George's laboratory is **less** old **than** the one Peter's mother has, but Tim's laboratory is **the least** old of all.

Note 3.

5. Emily set up her laboratory in 2000.
6. But Jim (above) also set up his laboratory in 2000.
7. Both laboratories are modern.
8. Emily's laboratory is **as** modern **as** Jim's.

When we compare things, people or whatever and we find that they are similar, then we use the formula **as + adjective + as**.

Note 4. We said that when we put **the** in front of an adjective, the adjective gets either the ending **-est** if it has two syllables, or **most** in front of it, if it has more than two syllables. When we have two adjectives that are related in such a way that, when the quality of the first increases, the quality of the second will increase too, then we use the formula: **the + er** or **more** for both adjectives.

Examples:

1. The more modern a laboratory is, the more expensive it is.
2. The older a laboratory is, the cheaper it is.

Here are some facts about your classmates and cameras.

Peter	bought a camera in 1980
Suzy	bought a camera in 1983
Aris	bought a camera in 2000
Athina	bought a camera in 2000
Lily	bought a camera in 1997
Kiki	bought a camera in 1995
	old cameras —————> cheap
	modern cameras —————> expensive

Talk about your classmates and their cameras making all possible comparisons.
The first has been done for you.

1. Peter-Suzy (old)

Peter's camera is older than Suzy's

2. Suzy-Aris (old)

Suzy's camera

3. Peter-Suzy-Aris (old)

_____ camera

4. Aris-Suzy (old)

Aris' camera



5. Suzy-Peter (old)

Suzy's camera

6. Aris-Suzy-Peter (old)

Aris' camera

7. Athina-Suzy (modern)

Athina's camera

8. Athina-Peter (modern)

Athina's camera

9. Athina-Suzy-Peter

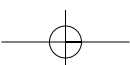
10. Lily-Athina (modern)

Lily's camera

11. Lily-Athina-Kiki

Kiki's camera

12. Athina-Aris (modern)



13. old cameras → cheap

14. modern cameras → expensive

C An invitation to Peter's party

The new school year has already started. Peter's mother, the dental technician assistant, asked her son to invite his classmates to their home for a buffet "get to know your classmates socially" party. Like all proud mothers at a certain time she shows the family album to Peter's classmates. Listen to her :

MOTHER: This is Peter at 3. Look, he is pulling our cat's tail. Isn't he funny? He is making faces. Here we are having a barbecue at the back yard, in our home in Volos. I'm not sure who the man with the funny hat is. The woman who is wearing a dress is my sister.

PETER: She is not wearing a dress mum. She is wearing a two piece suit.

MOTHER: Is she? There! This is my father. He is holding Peter in his arms. The man behind him is my brother. Peter, is he wearing the tie I bought him in Heathrow airport? I cannot see very well.

PETER: I think that's the one.

Task 1

It is your turn now to show your family album to us and describe yourself and members of your family or friends in snapshots of action. Choose five of them to talk about.

Use the patterns we have underlined above:

I	+ am + _____ing
*you	+ are + _____ing
he	} + is + _____ing
she	
it	

we }
 *you } + are + _____ ing
 they }

* **you is the same both when we talk about one person or more persons.**

Picture 1:

Picture 2:

Picture 3:

Picture 4:

Picture 5:

Task 2

Do some project work and a bit of competition in class. Display your photos on a poster, say what the people in them are doing at the moment the picture was taken, and then a panel of 3 learners decides which pictures are the most funny, which describe the most original actions, which are the most boring etc. etc. The winners hang up the posters in the class walls, or in the English corner, for a week for all classmates and learners from other classes to visit and see.

Notes

Note 1. When we are talking about actions or situations in progress, then we use this pattern:

Affirmative Form (Καταφατικός Τύπος)

Column 1	Column 2	Column 3
I	am	_____ing
*you		
he		
she	is	_____ing
it		
we		
*you	are	_____ing
they		

* **you is the same both when we talk about one person or more persons.**

Example: He is holding Peter in his arms.

Note 2. When we wish to ask questions we invert **columns 1 and 2**, above (Affirmative Form) **column 2** goes first, and **column 1** goes second. We also put a question-mark at the end.

Question Form (Ερωτηματικός Τύπος)

Column 1	Column 2	Column 3
am	I	_____ing ?
are	*you	
	he	
is	she	_____ing ?
	it	
	we	
are	*you	_____ing ?
	they	

* you is the same both when we talk about one person or more persons.

Example: Is he holding Peter in his arms?

Note 3. When we wish to make negative statements we add not (column +) before **column 3** (_____ing)

Negative Form (Αρνητικός Τύπος)

Column 1	Column 2	Column +	Column 3
I	am	not	_____ing
*you	are		
he			
she	is	not	_____ing
it			
we			
*you	are	not	_____ing
they			

* you is the same both when we talk about one person or more persons.

Example: He is not holding Peter in his arms.

Note 4. In Grammar language this formula with (**am, is, are + _____ing**) is called **Present Continuous Tense or Progressive Form.**