Instructions

Talk

Talk about how many bones a person has in total and what functions they fulfil.

Questions you can ask:

- Do all bones look the same?
- What different types of bones are there?
- What are bones for?
- What would happen to our body if we didn't have bones?
- Are bones strong?
- How many bones do you think our whole skeleton has?
- Is the number of bones constant throughout our whole life?
- Do children and adults have the same number of bones?
- Why do you think that is so?

Manual exercise

A few days before the lesson, make models of bones from salt dough.

Recipe for salt dough – instructions for making bones:

Ingredients (for 2 bones):
cup of flour,
2 cups of salt,
125 ml (4 fl oz) water.
Execution:
Each group (pair) makes two bones: one modelled on the tibia and one on the thigh bone (femur).
See:
1. http://preview.turbosquid.com/Preview/2014/07/10__01_00_15/main_00000.jpgc9aadee1-0112-459d-9437-f41c9388bcf6Original.jpg
2. http://previews.123rf.com/images/tagota/tagota1308/tagota130800004/21865329-Human-knee-anatomy-with-femur-tibia-and-fibula-bones-under-X-rays-isolated-on-black--Stock-Photo.jpg

Bones should be made in miniature and be about 10 cm long and 4-5 cm wide (longer and thinner ones could break). Each of the bones can be the same length, in spite of the fact that they normally differ from each other in size, because it is not important to reflect the actual proportions and sizes of the bones – but just how they are connected to each other (that is the purpose of the main activity in the lesson). Students pay attention to the ends of the bones – they try to recreate them as well as possible. Show photographs of the tibia and the femur.

After making bones from salt dough, they should be dried. The safest way is to dry them in the open air; then they won't crack. However, this involves a several-day wait for good effects. You can also put bones in an electric oven heated to a temperature of 167 °F (75 °C) and bake them for about 1-1.5 hours.

Constructing

Students construct a knee joint from art materials.

Before students start to construct the joint, they should stand up and check what movements a knee joint allows – they perform movements at the knee: bending, and rotating.
Ask: In what directions can the leg move at the knee? How do you imagine the structure of the (knee) joint? What bones are joined together at the knee joint?

Next, students form several groups, and – with the help of: bandages, elastic bands, plasticine, clay, string, cotton wool, and cosmetic pads – construct a knee joint, which joins the salt dough bones together.
Their task is to construct a joint in such a way as to connect the bones, but at the same time enable execution of movements that are similar to bending the knee – in other words, create a mechanism that will act similarly to a knee joint.

Movement game

Perform a few exercises that are good for joints and find out how to take care of them on an everyday basis.

1. Rolling over in a lying position.
Starting from a position of lying on your back, roll over so that you are lying on your stomach. Repeat this about 15 times – rolling both to the left and right. ("Rolling over" should be carried out every day in the morning, after waking up).
2. Morning gymnastics.

- Seated forward bends – sit comfortably on the floor legs apart. The legs should be lightly bent at the knees. Hands straight out in front of you. Next, bend your body (bow) towards the left leg, reaching towards your left foot with your hands. Then, bend towards the right leg, and reach towards your right foot with your hands. Repeat several times each side.
- Torso twists – stand with your back to the wall, feet slightly apart. Next, turning to the left, lean against the wall, resting on both hands, with hands about 40-50 cm apart, positioned as if you were doing push-ups. Repeat the exercise 3-5 times on each side.

Other exercises that are good for the joints:

- "star jump",
- skipping rope,
- dancing to music,
- yoga.

Every morning, you should do a 5 minute morning "wake-up" in various forms. Simple gymnastic exercises performed in all planes of movement of the joints are important.