

Министерство просвещения ПМР  
ГОУ СПО «Рыбницкий политехнический техникум»

Учебное пособие  
**English for plumbing**  
по дисциплине «Иностранный язык в профессиональной деятельности»  
для обучающихся по профессии  
«Мастер жилищно-коммунального хозяйства»

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Учебное пособие предназначено для профессионально-ориентированного этапа обучения и рассчитано на 32 аудиторных часа. Основная цель учебного пособия – развитие и совершенствование умения читать и переводить оригинальную литературу по профессии. Уделяется особое внимание обогащению словарного запаса по профессии.

Предназначено для обучающихся II курса по профессии «Мастер жилищно-коммунального хозяйства».

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## ПРЕДИСЛОВИЕ

Учебное пособие предназначено для обучающихся начального профессионального образования, по профессии «Мастер жилищно-коммунального хозяйства». Пособие построено на базе рабочей программы по дисциплине «Иностранный язык в профессиональной деятельности» и рассчитано на профессионально ориентированный этап обучения.

Основная цель учебного пособия – развитие и совершенствование умения читать и переводить оригинальную литературу на английском языке по профессии. Большое внимание уделяется расширению словарного запаса по профессии, повторению грамматических структур базового курса.

Учебное пособие включает в себя такие темы, как «Safety equipment», «Tools», «Installation of kitchen sink», «Toilet», «Pipe installation tips», «Faucets», «Clog removal», «Pipe repair», «Water service installation», «Welding». Каждая тема сопровождается профессиональной лексикой, которая определяется содержанием текстов в пределах изучаемой темы. В активном словаре отражены наиболее важные понятия и термины. Терминологическая лексика закрепляется в разнообразных упражнениях, которые построены по принципу «от простого к сложному».

Тексты, представленные в учебном пособии, ориентированы на овладение поисковым чтением. К текстам даются послетекстовые упражнения, направленные на определение основной темы или идей текста, поиск конкретной информации, на сопоставление английского слова с его аналогом на русском, выбор правильного слова согласно содержанию текста.

## 1. SAFETY EQUIPMENT

### Vocabulary:

safety glasses	защитные очки
earplugs	бируши
hard hat	каска
first aid kit	аптечка первой помощи
grip gloves	захват перчатки
goggles	очки защитные
leather gloves	кожаные перчатки
face shield	защитная маска
steel-toed boots	сапоги со стальным носком
kneepads	наколенники
dust masks	пылезащитные маски

### Exercise 1. Read and translate the micro text

#### Safety Equipment

#### Workplace Safety Guidelines

Wear a hard hat and steel-toed boots at all times on a construction site. There are NO exceptions.

Always wear safety glasses or goggles when operating saws or similar machinery.

Use a face shield when welding. The sparks can cause burns or blindness.

Use earplugs when operating loud machines.

Wear leather gloves or grip gloves when working with heavy or rough items.

Wear kneepads when kneeling. Long periods of kneeling cause pain or injury.

Use a dust mask when working with toxic materials.

Keep the site first aid kit fully stocked.

### Exercise 2. Answer the questions

- What are some different kinds of safety equipment?
- Why do companies insist that plumbers use safety equipment?
- What grammatical phenomena can you analyze in the text?
- Find in the text the sentences in the Present Simple. Read them and analyze the verbs.
- Read the nouns in plural.

**Exercise 3. Mark the following statements as true (T) or false (F)**

- 1 – All employees on construction sites wear hard hats.
- 2 – Leather gloves should be worn when working with toxic materials.
- 3 – Workers must have individual first aid kits.

**Exercise 4. Match the words (1–5) with the definitions (A–E)**

1 – safety glasses	A supplies used to give medical assistance to an injured person
2 – first aid kit	B protective clothing worn over the hands with special surfaces for grasping objects
3 – earplugs	C thick lenses worn over the eyes to protect them from flying objects
4 – grip gloves	D devices worn to protect the user from very loud noises
5 – hard hat	E a thick covering designed to protect the user's head from falling objects

**Exercise 5. Choose where the words best fit the blanks**

**1. face shield / steel-toed boots**

A Be sure to wear \_\_\_\_\_ to protect your feet.

B The welder wore a \_\_\_\_\_ to guard against flying sparks.

**2. goggles / leather gloves**

A You should really guard your eyes with \_\_\_\_\_ before you use the electric saw.

B I always wear a pair of \_\_\_\_\_ to protect my hands.

**3. kneepads / dust masks**

A The men wore \_\_\_\_\_ during the building demolition to avoid breathing in dust.

B Plumbers often wear \_\_\_\_\_ because they have to kneel for long periods.

**Exercise 6. Fill out the safety incident report.**

**Safety Incident Report**

Worker name: \_\_\_\_\_

Safety Violation \_\_\_\_\_

\_\_\_\_\_

Did an injury result? \_\_\_\_\_







Supervisor Name: \_\_\_\_\_

Action Taken: \_\_\_\_\_

## 2. TOOLS

### Vocabulary:

tool box		ящик для инструментов
chalk box		коробка с мелками
level		уровень
tape measur		рулетка
utility knife		канцелярский нож
plumb bob		отвес
Phillips screwdriver		отвертка Филлипс (крестовая)
slotted screwdriver		шлицевая отвертка

wallboard saw		настенная пила
hacksaw		ножовка
plastic pipe saw		пила для пластиковых труб
claw hammer		молоток-гвоздодер
ball peen hammer		шаровой молоток
nut driver		гайковёрт

**Exercise 1. Read and translate the text, find new words:**

**Bob's Hardware**

Bob's Hardware has tools for every job. We have BuildCo nut drivers, Phillips screwdrivers, and slotted screwdrivers. We also have sets with all three types!

We carry ball peen and claw hammers of all shapes and sizes. Do you need to make sure something is straight? Our selection of levels and plump bobs will do the trick.

If you're cutting, we have what you need. From utility knives to hacksaws, all cutting tools are half-price. That includes all wallboard saws and plastic pipe saws. But grab a tape measure and chalk box first. Measure twice, cut once! And stay organized with our tool boxes.



**Exercise 2. Answer the questions:**

- a. What are common hand tools?
- b. Why should plumbers bring all of their tools to a job?
- c. What grammatical phenomena can you analyze in the text?
- d. Find the Present Simple in the sentences in the text. Read them and analyze the verbs.

**Exercise 3. Match the words (1–8) with the definitions (A–H):**

1. Phillips screwdriver	<b>A</b> a tool that turns screws with one long slot
2. slotted screwdriver	<b>B</b> a tool with a thick head used to shape metal
3. ball peen hammer	<b>C</b> a tool with a socket used to turn nuts and bolts
4. plastic pipe saw	<b>D</b> a tool with a blade used to cut metal
5. wallboard saw	<b>E</b> a tool with a blade used for cutting pipe made of plastic
6. wallboard saw	<b>F</b> a tool used to drive or remove nails
7. hacksaw	<b>G</b> a tool used to turn screws with two slots that meet at a right angle
8. nut driver	<b>H</b> a tool with a blade used for cutting sections of a wall

**Exercise 4. According to the text you have read in the first task, mark the following statements as true (T) or false (F):**

- 1 – Some nut drivers and screwdrivers are sold together.
- 2 – The store has several types of ball peen hammers.
- 3 – Tape measures and chalk boxes are on sale.

**Exercise 5. Fill in the blanks with the correct words and phrases from the word bank**

**Word bank:** *tool box, chalk box, level, tape measure, utility knife, plumb bob*

1. Use a(n) \_\_\_\_\_ to mark lines on the floor.
2. Get a(n) \_\_\_\_\_ to see if this picture is hanging straight.
3. The \_\_\_\_\_ shows inches and centimeters.
4. Store all tools in a(n) \_\_\_\_\_.
5. The \_\_\_\_\_ hung from a string is used to determine a vertical line.
6. Cut the rope with this \_\_\_\_\_.

### 3. MEASUREMENTS AND SIZING

#### Vocabulary:

pound	фунт
centimeter	сантиметр
inch	дюйм
kilogram	килограмм
conversion	преобразование
millimeter	миллиметр
imperial	императорский
metric	метрика
Psi	Пси
kPa	кПа

#### Exercise 1. Read and translate the micro text:

##### Measurements and Sizing

A plumb is proud to serve clients around the world. We know that not all customers use the same measurements. For our North American clients, we provide imperial measurements. All pipe sizes are listed in inches. Weight measurements appear in pounds.

For clients outside North America, we also provide metric measurements. Pipe sizes are listed in millimeters. Weight measurements appear in kilograms.

Each region has its own page. Just click the link for the measurements you need. To convert measurements between systems, use our conversion calculators. Click «Conversions». You can convert inches to centimeters in an instant.

#### Notes:

– *What are the units of PSI?*

The standard unit of pressure in this system is **pound per square inch (PSI)**: the pressure resulting from a force of one pound applied to an area of one square inch. 1 PSI is approximately equal to 6895 Pa.

– *How many PSI is a pound?*

It is the pressure resulting from a force of one pound-force applied to an area of one square inch. In SI units, 1 psi is approximately equal to 6895 Pa.

##### Pound per square inch

Unit system	Imperial units, US customary units
Unit of	Pressure, Stress
Symbol	psi or lbf/in <sup>2</sup>

– *What are the units of kPa?*

kPa (Kilopascal) is a **unit of measure in Europe and other areas that use the metric system**. BAR is a unit of measure in Europe and other areas that use the metric system and it is defined as 100 Kilopascals. It is about equal to the atmospheric pressure on Earth at sea level.

– *What is 1 kPa equal to in PSI?*

0.14504 PSI

#### **kilo Pascals To PSI Conversion Table**

<b>kPa (kilo Pascal):</b>	<b>PSI (Pounds Per Square Inch):</b>
1 kPa	<b>0.14504 PSI</b>
2 kPa	0.29008 PSI
3 kPa	0.43511 PSI
4 kPa	0.58015 PSI

#### **Exercise 2. Answer the questions:**

- What are the two major measurement systems? Where are they used?
- What are some common measures in two systems?
- What grammatical phenomena can you analyze in the text?
- Find in the text the sentences in the Present Simple. Read them and analyze the verbs.
- Say the sentences with the verb «to be». Say its Tense, Person and Number.

#### **Exercise 3. Mark the following statements as true (T) or false (F):**

- PSI is used in the metric system.
- Kilograms are provided with the imperial product listings.
- A plumb lists two types of pressure measurements for each product.

#### **Exercise 4. Match the words (1–6) with the definitions (A–F):**

<b>1</b> – pound	<b>A</b> a metric measure of distance equal to 1/100 of a meter
<b>2</b> – inch	<b>B</b> the act of changing a measurement from one system to another
<b>3</b> – conversion	<b>C</b> an imperial measure of distance
<b>4</b> – centimeter	<b>D</b> a metric measure of distance equal to 1/1000 of a meter

5 – kilogram  
6 – millimeter

E a metric measure of weight  
F an imperial measure of weight

### Exercise 5. Choose where the words best fit the blanks

1. **imperial / metric**

A The \_\_\_\_\_ system uses pounds, not kilograms.

B An inch is not a(n) \_\_\_\_\_ measurement.

2. **PSI / kPa**

A Metric pressure is measured in \_\_\_\_\_.

B Imperial pressure is measured in \_\_\_\_\_.

## 4. INSTALLATION OF KITCHEN SINK

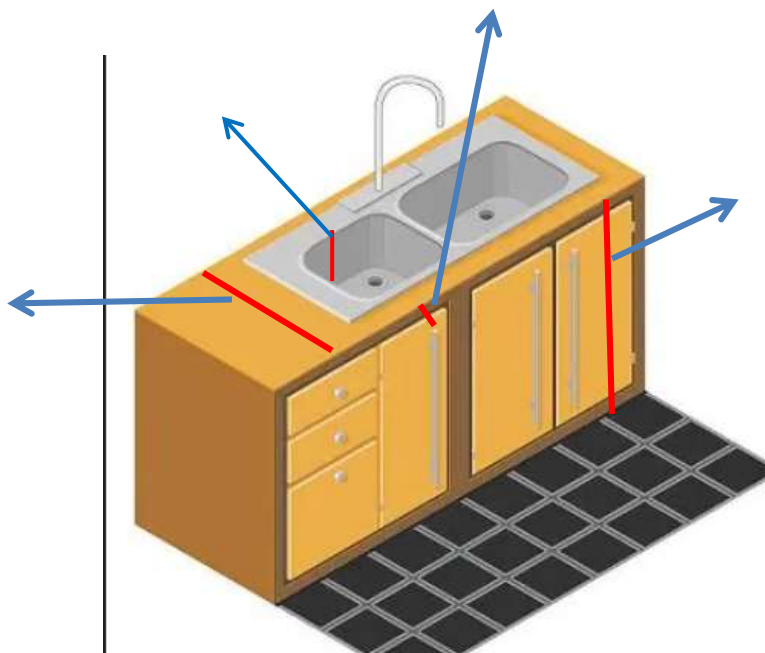
### Vocabulary:



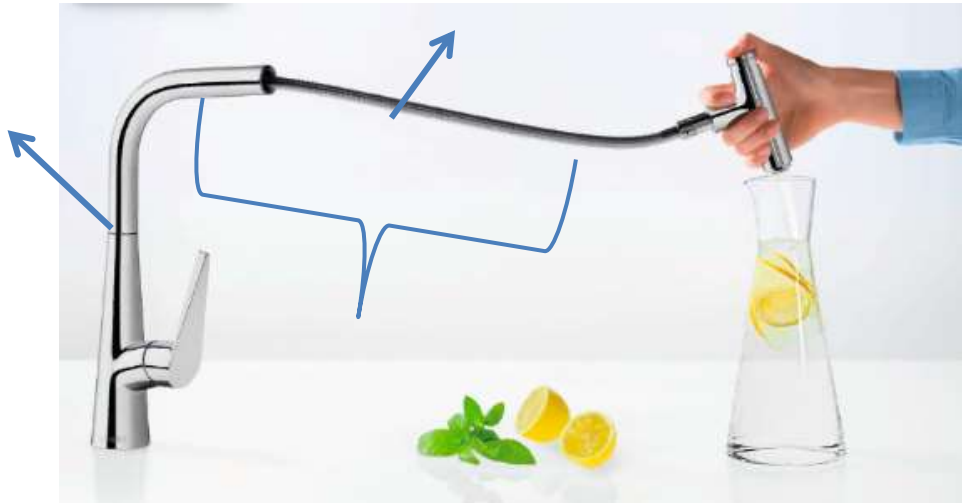
width	ширина
height	высота
depth	глубина
length	длина
thickness	толщина
strength	прочность, сила
weight	вес
rigid	жесткий
durability	долговечный
flexible	гибкий

### Exercise 1. Give a name to the following values:

a)



b)



**Exercise 2. Read and translate the text:**

TO: g.hanson@ilmplumbing.com

FROM: h. breen@ilmpumbing.com

SUBJECT: Tomorrow's kitchen sink installation

Hi Gina,

Here are the details for tomorrow's installation. The sink has a width of two feet.

The height of the counter is four feet. The sink has a depth of one foot. The owner wants a side spray with flexible hose. The hose should be two feet in length. Before you install the sink, check the thickness of the counter. It needs enough strength to hold the sink's weight.

Also, now the owner wants PVC pipes under the sink, not aluminum. They're less rigid, but they have good durability. Please note these changes in your work order.

Harold Breen,

Manager, ILM Plumbing

**Exercise 3. Answer the questions:**

a) What are some strong materials?

b) Find in the text the sentences in the Present Simple. Read them and analyze the verbs.

c) Read all the verbs and say whether they are regular or irregular.

**Exercise 4. Mark the following statements as true or false:**

1 – the sink has a larger width than depth.

2 – the plumber must check the thickness of the hose.

3 – the customer requested more rigid pipes.

**Exercise 5. Match the words (1–6) with the definitions (A–F):**

1. rigid	A. the measure of how heavy something is
2. flexible	B. not bending easily
3. strength	C. the ability to be used without being damaged
4. durability	D. the distance between two surfaces
5. thickness	E. the ability to withstand force
6. weight	F. able to bend easily

**Exercise 6. Choose where the words best fit the blanks:**

**1. width/height**

**A** A water heater with a \_\_\_\_\_ of five feet is too tall for this room.

**B** If the \_\_\_\_\_ of that doorway is less than four feet, this dishwasher will be too wide to fit.

**2. length/depth**

**A** The \_\_\_\_\_ of this sink is too shallow, we need a deeper one.

**B** The \_\_\_\_\_ of this pipe is too short.

**Exercise 7. Read the information about the types of mounting installations for a kitchen sink:**

Here are four different types of mounting installations for a kitchen sink into a countertop: under-mount, dual mount, drop-in, and farmhouse.

– **Drop-in** – It is also referred to as self-rimming. The sink has a finished edge or rim and is installed on top of the countertop. If you are planning to replace your sink soon, then this type of mounting is preferred. The sink can be removed and installed without damaging the countertop while at it.

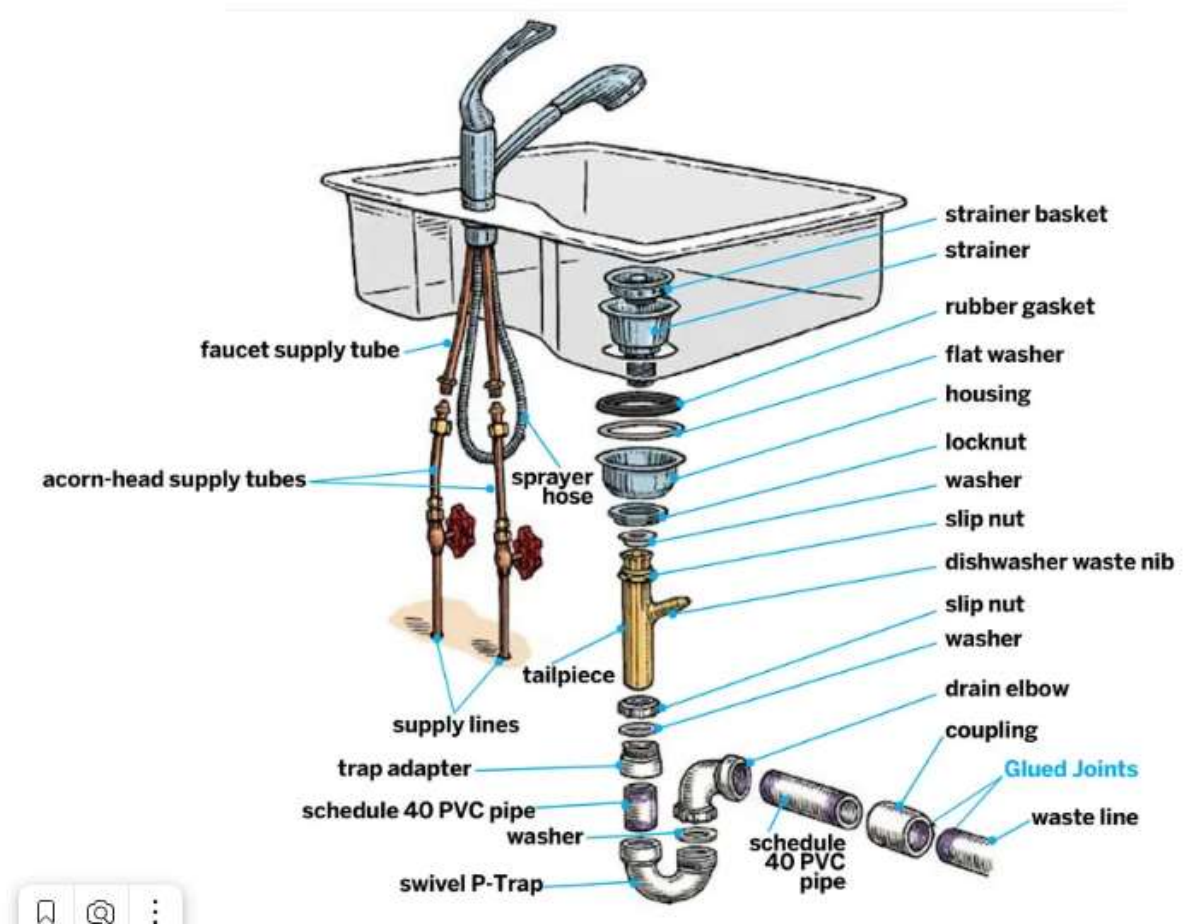
– **Dual mount** – This one has a flat rim that is the thickness of the material. They can either be installed above as a drop-in or as an under-mount making it quite versatile. This type of mounting is also favourable if you would want to remount the sink in the future. It also gives you flexibility when choosing your countertop.

– **Undermount** – Also called a recessed sink is installed under the countertop and creates this seamless appearance. They can be mounted in a way it shows some of the sink rim or overhang where the rim isn't seen at all. If you are going for a quartz or natural stone countertop, then this is better for that. This one though you will have to get a professional installer to do it.

– **Farmhouse** – Referred to as an apron front is mounted below the countertop exposing the sink front which extends slightly farther than the cabinet below.

Recommended for any solid surface countertop and offers a unique look. This installation type also requires a professional.

**Exercise 8. Look at the picture and give the Russian equivalents of these words:**



## 5. PIPE INSTALLATION TIPS

### Vocabulary:

to measure	измерять
to slide	всовывать
to tilt	поворачиваться
to cut	резать
to rotate	поворачивать
to mark	отмечать

**Exercise 1. Read new words and make up your own sentences using these words.**

### Exercise 2. Read and translate the text:

First, measure the correct length of pipe. Choose where to cut the pipe and mark the spot. To slice the pipe, we recommend a pipe cutter.

Slide the piece of pipe into the pipe cutter. Adjust the pipe cutter to fit the pipe. Then turn the wheels until the blade touches the pipe. Be sure that the pipe is straight. If the pipe tilts in the pipe cutter, it will not cut properly.

To saw through the pipe, rotate the pipe cutter. Remove any rough edges inside the pipe. Measure the new pipe segment to ensure it is correct.

### Exercise 3. Answer the questions:

- What are some tools that can be used to cut a pipe into two pieces?
- What are the steps a plumber should take when cutting a pipe with a pipe cutter?

### Exercise 4. Complete the chart according to the text:

- Step 1 \_\_\_\_\_ and \_\_\_\_\_ the pipe.  
Step 2 \_\_\_\_\_ the pipe into a pipe cutter.  
Step 3 Be sure that the pipe does not \_\_\_\_\_.  
Step 4 \_\_\_\_\_ the pipe cutter to \_\_\_\_\_ though the pipe.

### Exercise 5. Match the words (1–6) with the definitions (A–F):

1. measure	A	to place a sign on something
2. tilt	B	to turn something over or around
3. rotate	C	to determine the physical properties of an object
4. slide	D	to move something along a surface
5. cut	E	to separate or divide something with a blade or edge
6. mark	F	to lean in a direction



## Exercise 6. Choose where the words best fit the blanks:

### 1. adjust/slice

A Turn the wheel to \_\_\_\_\_ the wrench.

B Be careful with that knife or you'll \_\_\_\_\_ your hand.

### 2. saw/turn

A \_\_\_\_\_ through the pipe with this tool.

B \_\_\_\_\_ the screwdriver clockwise to tighten the screw.



## 6. PLUMBING FIXTURES

### Vocabulary:

countertop	столешница
shower sink	душевая
bathtub	ванна
toilet, water closet, lavatory	туалет
laundry	прачечная
basin	бассейн
bidet	биде

### Exercise 1. Read the definitions of the words, and try to explain the differences between them:

**Toilet** – a fixed receptacle into which a person may urinate or defecate, typically consisting of a large bowl connected to a system for flushing away the waste into a sewer or septic tank.

**Water closet** – a compartment or room with a toilet bowl: a toilet bowl with its fixtures.

*What is the difference between a water closet and a toilet?*

In the US **toilets are still referred to as water closets but urinals are not.** This differentiates allows for easy labeling of fixture types that are approved for different types of waste. It may be important to note that the reference is only for the toilet only for the building codes

**Lavatory** – a room with conveniences for washing and usually with one or more toilets.

*What is the difference between toilet and lavatory?*

Lavatory is a word that is used as a euphemism for toilet which is considered improper and impolite in some places. Today, lavatory is used more often than toilet, and in fact, in all airlines of the world, this is the word that is used to refer to washrooms.

## **Exercise 2. Read and translate the email**

### **MEMORANDUM**

DATE: June 17  
TO: Roger Wilson  
FROM: Jerry Stein  
SUBJECT: Installing Fixtures

Hi Roger,

The house on the 10<sup>th</sup> Street needs some fixtures installed. Your crew should install them by tomorrow. There's a toilet ready to go in the downstairs bathroom. The fixture company will deliver the sink and bathtub. They'll also bring another toilet, bidet, and shower for the second floor. The family wants more than a water closet up there. They want a lavatory, as well.

Also, put a basin in the laundry. The company will deliver it today. Don't forget to install the kitchen sink. And clear the kitchen countertop when you finish.

Thanks,  
Jerry

## **Exercise 3. Answer the questions:**

- a) What are some common plumbing fixtures?
- b) Why is it important to know about different kinds of fixtures?
- c) What grammatical phenomena can you analyze in the text?

d) Find in the text the sentences in the Present Simple. Read them and analyze the verbs.

e) Find in the text the sentences in the Future Simple. Read them.

**Exercise 4. Mark the following statements as true (T) or false (F)**

- 1 – The plumbers should install the fixtures today.
- 2 – The family wants a lavatory in the upstairs bathroom.
- 3 – The basin for the laundry is on a kitchen countertop.

**Exercise 5. Match the words (1–6) with the definitions (A–F)**

1 – toilet	A a large sink
2 – laundry	B a water-spraying tube attached to some toilets used for cleaning
3 – bidet	C a room containing a toilet
4 – water closet	D dirty clothing to be washed
5 – basin	E a bowl-like fixture in a bathroom in which people relieve themselves
6 – lavatory	F a room with one or more toilets and hand sinks for washing hands

**Exercise 6. Choose where the words best fit the blanks**

**1. countertop/shower**

- A The sink will rest on the \_\_\_\_\_ .  
B The bathroom will have a \_\_\_\_\_, not a bathtub.

**2. sink/bathtub**

- A This \_\_\_\_\_ holds thirty gallons of water.  
B Install this \_\_\_\_\_ in the counter.

## 7. FAUCETS

**Vocabulary:**

bath tub faucet	смеситель для ванной
shower faucet	смеситель для душа
tub and shower faucet	смеситель для ванной и душа
lavatory faucet	смеситель для унитаза
diverter	дивертер
aerator	аэратор
air gap	воздушный зазор
spout	носик
handle	ручка

### Exercise 1. Read and translate the micro text

#### Faucets

#### New Product Listing: Complete Bathroom Fixture Set \$ 300

This fixture set will provide many years of quality service. The lavatory faucet gives a refreshing cleanse with each use. The combination tub and shower faucet installs easily. The chrome bathtub faucet gives an even stream of water. The detachable shower faucet has a flexible chrome handle. An easy-to-turn diverter switches between faucets quickly and efficiently. This means less water washed and lower water bills. The shower spout has a multiple-setting swivel aerator.

Take care when installing this fixture set. The bathtub faucet and tub should have a 30-centimeter air gap.

To order this product, please call or complete an order form.

### Exercise 2. Answer the questions:

- a) What are some common types of faucet?
- b) Why should a plumber know about different kinds of faucets?
- c) What grammatical phenomena can you analyze in the text?
- d) Find in the text the sentence in the Future Simple. Read it and analyze the verbs.

### Exercise 3. Mark the following statements as true (T) or false (F) having read the product description about a fixture set (ex. 1)

- 1 – The bathtub and shower faucets are separate units.
- 2 – The shower faucet can be adjusted to different settings.
- 3 – There must be at least thirty inches between the bathtub and shower faucet.

### Exercise 4. Match the words (1–5) with the definitions (A–E)

1 – diverter	A an attachment to something that can be gripped
2 – air gap	B a fixture which directs the flow of water to and from the bathtub faucet and the shower faucet
3 – aerator	C the opening of a pipe from which water is released
4 – spout	D part of a faucet which controls how water sprays out of the faucet
5 – handle	E a vertical space below a water spout which stops used water from flowing into the same spout

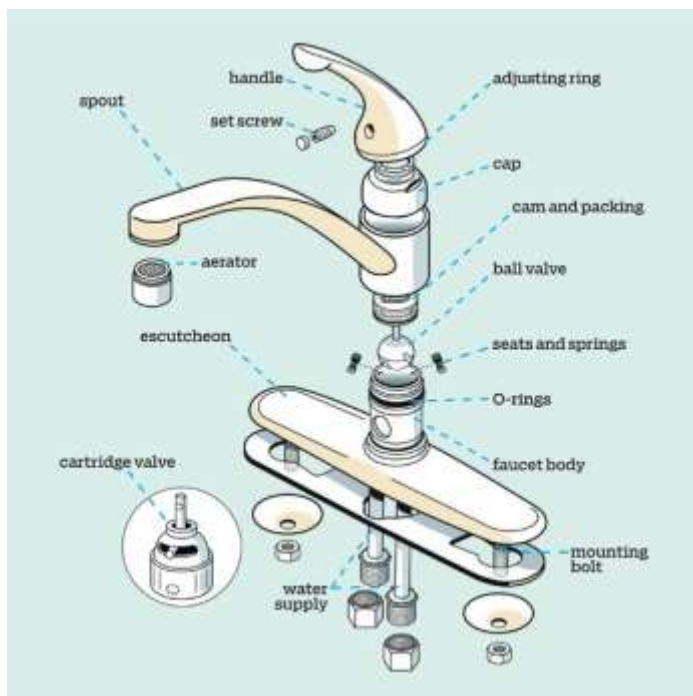
**Exercise 5. Fill in the blanks with the correct words and phrases from the word bank**

**Word bank: bathtub faucet, shower faucet, tub and shower faucet, lavatory faucet**

- 1 A \_\_\_\_\_ should be installed about five feet high.
- 2 I installed a combination \_\_\_\_\_ in my bathroom.
- 3 A \_\_\_\_\_ is only designed for hand washing.
- 4 A good \_\_\_\_\_ can fill a tub in a few minutes.

**Exercise 6. Make up a dialogue on the theme «Faucets».**

**Exercise 7. Look at the pictures and name the main parts of the faucets.**



**Exercise 8. Retell the text (10–15 sentences).**

## 8. CLOG REMOVAL

### Vocabulary:

blockage	закупорка
closet auger	шнек
to clear	прочистить
cable auger	тросовый шнек
crank	рукоятка
electric power auger	электрический шнек
clog	засор
plunger	поршень
drainpipe	водосточная труба

### Exercise 1. Read and translate the text

#### Clog Removal

Some plumbing problems require the tools and know-how of a plumbing expert. Others simply require a determined homeowner and some basic equipment. Some of the most common of these plumbing issues are clogs.

The first way to clear a clogged drainpipe is to try using a plunger. Place the rubber cup over the sink or toilet drain to create a watertight seal. Then firmly push the plunger up and down. This will force water through the system and hopefully send the blockage on its way.

If the clog cannot be removed with a plunger, an auger may be needed. A closet auger has a relatively short flexible cable and a corkscrew tip. This will be sufficient for pulling out clogs in the first few feet of a drain system. If the clog is further back, you might need a cable auger. Also called a plumber's snake, this tool has a long flexible cable that can extend far back into drain system. It will also have a cranking mechanism to extend and retract the cable.

Note: To avoid damaging pipes, an electric power auger is not recommended on lighter plumbing systems.

### Exercise 2. Answer the questions:

- a) What is a plunger?
- b) What are the tools for clearing clogged drains?
- c) What grammatical phenomena can you analyze in the text?
- d) Find in the text the sentences in the Future Simple. Read them and analyze the verbs.

**Exercise 3. Choose the correct answers having read the text «Clog Removal»**

1. What is the purpose of the chapter?

- A to advertise clog removal tools
- B to describe common causes of clogged drains
- C to warn of the damage clogs can cause
- D to explain how to clear a clogged drain

2. Which of the following should NOT be used on lighter pipes?

- A plumber's snake
- B cable auger
- C electric power auger
- D closet auger

3. What tools makes a watertight seal to push blockage through a pipe?

- A plumber's snake
- B closet auger
- C electric power auger
- D plunger

**Exercise 4. Match the words (1–6) with the definitions (A–F)**

1 – blockage	A a clog removal tool with a J-shaped handle
2 – clear	B a clog removal tool with a long coiled cable and cranking mechanism
3 – crank	C to turn something in order to work its moving parts
4 – closet auger	D a clog removal tool that turns on electricity
5 – cable auger	E obstructive material in a piping system
6 – electric power auger	F to remove obstructions from a pipe

**Exercise 5. Choose where the words best fit the blanks**

1 plumber's snake / clog

A Sue removed the \_\_\_\_\_ using a plunger.

B This \_\_\_\_\_ has a thirty foot cable.

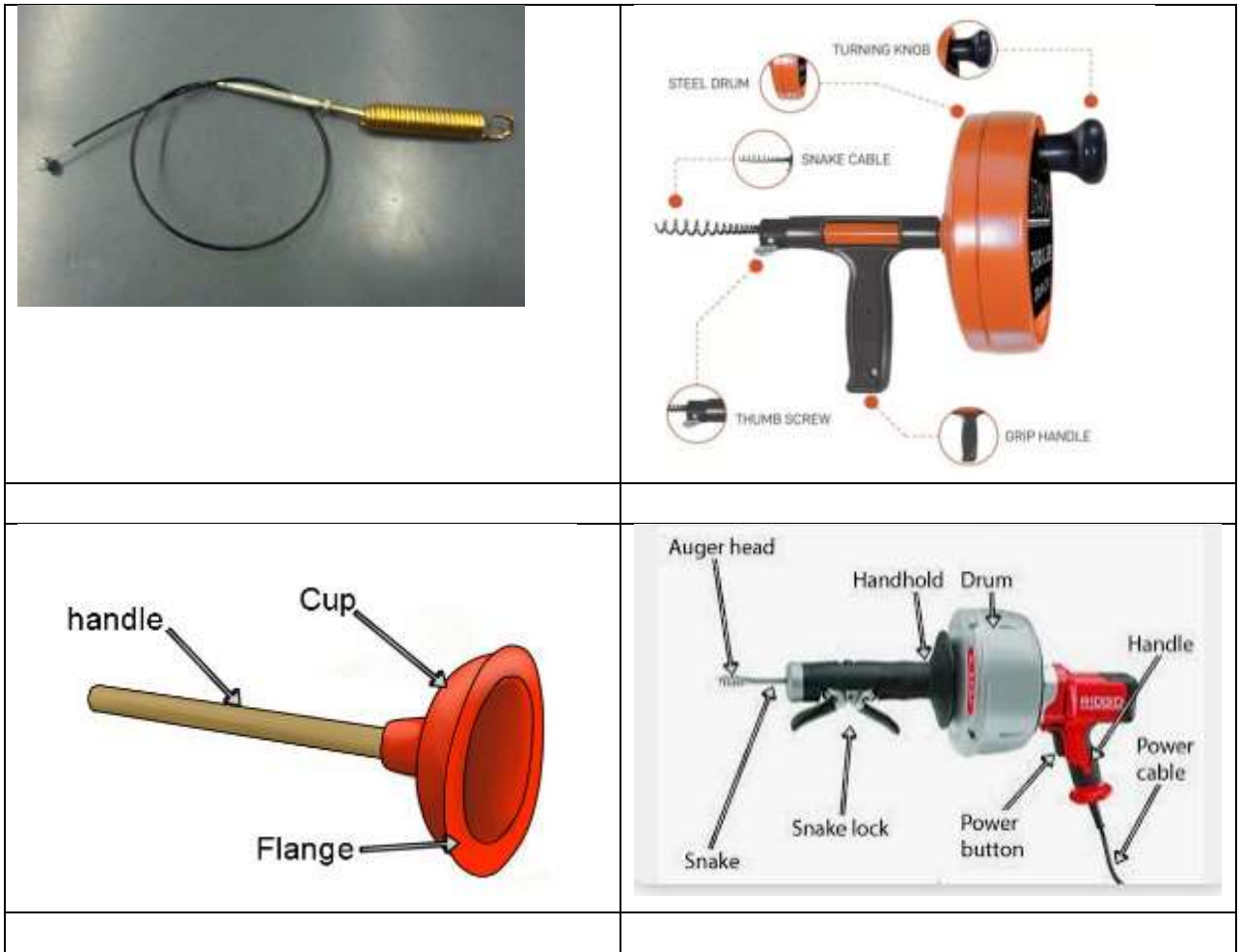
2 plunger / drainpipe

A The rubber cup of the \_\_\_\_\_ is red.

B The plastic ball became lodged in the \_\_\_\_\_.

**Exercise 6. Make up a dialogue on the theme «Clog Removal».**

**Exercise 7. Look at the pictures, name the devices and tell for what there are used:**



**Exercise 8. Retell the text (10–15 sentences).**

## 9. PIPE REPAIR

### Vocabulary:

braided-stainless-steel

плетенная нержавеющей сталь

pipe repair clamp

хомут для ремонта труб

burr

заусеница

pinhole

дырочка

splice

соединение

overlap

перекрытие

ferrules

наконечники

a leak

утечка

split pipe

сплит-труба



## Exercise 1. Read and translate the text

### Pipe Repair

Pipes make up the backbone of your home's plumbing structure. Without proper maintenance of pipes, your entire plumbing system could collapse.

The key to maintaining healthy pipes is catching problems early. A pinhole may seem minor, but it could quickly lead to a massive leak. These holes must be patched right away. Pinch a pipe repair clamp around the hole, and check surrounding parts for other signs of corrosion. Always ensure the area is clean and dry before applying a clamp.

For large holes or split pipes, you may need to cut the affected area and slice a new piece into the gap. Make sure you smooth any burrs around pipe edges with sandpaper after cutting. Then secure the replacement piece with ferrules. Take care to leave adequate overlap between the new piece and existing pipe.

Some types of pipe, such as braided-stainless-steel hoses, can be difficult to patch. Fortunately, these connections are often short, so the whole pipe is easily replaced.

And remember; always turn off the water supply before performing any pipe repairs. Otherwise, your small leak could turn into a massive flood.

## Exercise 2. Answer the questions:

- What are some different types of leaks that form in pipes?
- Which repair methods are best for different types of leaks?
- What grammatical phenomena can you analyze in the text?
- Find in the text the sentences in Present Simple. Read them and analyze the verbs.
- Find the Genitive case. Give an example.

## Exercise 3. Complete the table using information from the text

Problem	Solution
Pinhole	_____
Split pipe	_____
Difficult-to-patch pipe	_____

## Exercise 4. Write the word that is similar in meaning to the underlined part

1 The plumber attached a metal ring that secures pipe ends to the replacement piece.

\_\_ p \_\_ r c \_\_ p \_\_

- 2 You must tightly press the clamp to the damaged pipe before securing it.  
 \_ \_ n c \_
- 3 Use paer with rough side to smooth the pipe's edges.  
 s \_ \_ d \_ \_ p \_ \_
- 4 A cracked or broken pipe can cause serious plumbing problems.  
 \_ p l \_ \_

**Exercise 5. Fill in the blanks with the correct words and phrases from the word bank**

**Word bank: braided-stainless-steel, pipe repair clamp, burr, pinhole, splice, overlap**

- 1 The major leak started as a tiny \_\_\_\_\_.
- 2 Remember to \_\_\_\_\_ in a new piece when the pipe has a large crack or hole.
- 3 If the \_\_\_\_\_ is too small, the pipe joint might leak.
- 4 Cutting the pipe formed a(n) \_\_\_\_\_ along the edge.
- 5 If the hole is small, fix it with a(n) \_\_\_\_\_.
- 6 The sink faucet is attached to a flexible \_\_\_\_\_.

**Exercise 6. Mark the following statements as true (T) or false (F) having read the text «Pipe Repair»**

- 1 The pipe has a pinhole leak.
- 2 The woman suggests a pipe repair clamp.
- 3 The plumbers will remove part of the pipe.
- 4 Pipes make up the backbone of your home's plumbing structure.

**Exercise 7. Make up a dialogue on the theme „Pipe Repair”.**



**Exercise 8. Retell the text (10–15 sentences).**

## 10. SITE COMMUNICATION

### Vocabulary:

two-way radio	двустороннее радио
rough-in sheet	черновой лист
consult	консультироваться
building permit	разрешение на строительство
carry	нести
smart phone	смартфон

**Exercise 1. Match the picture with its definition**

1.		<p>1. These allow calling and receiving at the same time using two different frequencies. Unlike walkie-talkies where you have to remain on receive mode while someone is talking, two-way radios allow you to deliver your message at the same time</p>
2.		<p>2. It is the stage of a construction project when the various mechanical, electrical, and plumbing lines are brought in. Once the framing is up, the rough-in stage of construction begins. This is when lines are laid out, but final connections are not made until other stages of the project are completed</p>
3.		<p>3. It is permission to begin construction – a legal document that provides a permanent construction record to certify a building project met the current building code requirements and, when necessary, conformed to approved plans and specifications</p>
4.		<p>4. Is a cellular telephone with an integrated computer and other features not originally associated with telephones such as an operating system, web browsing, and the ability to run software applications</p>

**Exercise 2. Read and translate the email «Site Communication»**

TO: Employees of Atchison Plumbing  
 FROM: Stephen Atchison, Owner  
 DATE: October 18  
 SUBJECT: Communication Issues

Hank Milton is the owner of Milton Homes. Mr. Milton is one of our biggest clients. Yesterday I received an email from him. Some of the fixtures in the Paradise Subdivision were not installed correctly. Apparently, there was confusion about the instructions on the rough-in sheet.

In these cases, employees should consult their on-site supervisor. This will allow you to confirm the correct way to do things. The employees on the job site were not carrying their smart phones. As a result, they were unable to call each other. The posted company policy states employees are to carry their phones while working. The company provides phones and two-way radios to all employees.

These allow you to contact me and each other while on the job. From now on, please be sure to carry your phones and radios.

Milton Homes received building permits for another subdivision. We will get the work orders for the plumbing. Let's do it right this time.

**Exercise 3. Answer the questions:**

- a) Why is it important for employees to be able to communicate with each other on job sites?
- b) What are some methods they use to communicate on job sites?
- c) What grammatical phenomena can you analyze in the text?
- d) Find an example of the Possessive Case of a noun. Read it.

**Exercise 4. Mark the following statements as true (T) or false (F) having read the email «Site Communication»**

- 1 – The email contains a new rough-in-sheet.
- 2 – Some plumbing company employees violated company policy.
- 3 – The client no longer wants to use the plumbing company.

**Exercise 5. Write the word that is similar in meaning to the underlined part**

- 1 – The written authorization to do a job came in two days ago.  
\_ \_ r \_ \_ t
- 2 – The store displayed a notice that it was closing at noon.  
\_ e \_ e \_ v \_ d
- 3 – The electronic message was sent to everyone in the company.  
\_ m \_ \_ l
- 4 – The man communicated with the company about any job openings.  
c \_ \_ s \_ \_ t \_ \_

**Exercise 6. Fill in the blanks with the correct words and phrases from the word bank**

**Word bank: two-way radio, rough-in sheet, consult, building permit, carry, smart phone**

- 1 – The \_\_\_\_\_ said to hook up the washing machine last.
- 2 – She looked up the directions to the job site on her \_\_\_\_\_.
- 3 – The city issued a \_\_\_\_\_ for a house on the empty lot.
- 4 – The employee must \_\_\_\_\_ her boss about how to solve the problem.
- 5 – Plumbers use \_\_\_\_\_ to communicate with each other.
- 6 – Please \_\_\_\_\_ these pipes to the upstairs bathroom.

**Exercise 7. Retell the text (10–15 sentences).**

**11. DRAINAGE, WASTE, AND VENT INSTALLATION: VENTING**

**Vocabulary:**

individual vent	индивидуальная вентиляция
loop vent	вентиляционная петля
horizontal branch	горизонтальная ветвь
branch vent	вентиляционное отверстие
relief vent	сброс сброса
circuit vent	вентиляция контура
venting	вентиляция
island venting	островная вентиляция
drainage fixture unit	узел дренажной арматуры
fixture branch	ветвь приспособления

**Exercise 1. Read and translate the text**

Proper venting of every fixture is an essential part of any DWV system. There are several different kinds of vents. Plumbers must be familiar with each type when installing a DWV system.

First, an individual vent serves a single fixture trap and connects to other vents or open air. Two of these vents can connect together to form a branch vent, which is a vent for a horizontal branch. Individual drains are connected to a horizontal branch by a fixture branch.

Next, large bathroom areas in commercial buildings may use circuit vents, which can serve up to eight fixture traps. Relief vents must be installed with a circuit vent to circulate air between the drainage and venting system. Last, a loop vent is a special circuit vent located on the top floor of a building.

Two special kinds of venting systems usually require approval before installation. First, wet venting uses a single vent for more than one fixture. These are often used in household bathrooms. Second, island venting can be used for fixtures that are not next to a wall, such as some kitchen sinks.

Before a DWV system can be installed, piping must be properly sized. Sizing calculations use drainage fixture units, which measure the number of liters of water per second that flow from a fixture into a drainage system.

**Exercise 2. Answer the questions:**

- a) What are some segments of a drainage, waste, and vent system inside a building?
- b) What are some different types of vents?

**Exercise 3. Mark the following statements as true (T) or false (F) having read the textbook passage «Drainage, Waste, and Vent Installation: Venting»**

- 1 – Two individual vents connect in a branch vent.
- 2 – Circuit vents do not require relief vents.
- 3 – Island venting is usually found in bathrooms.

**Exercise 4. Match the words (1–6) with the definitions (A–F)**

1 – individual vent	A a vent that ends by connecting to a stack vent instead of a vent stack
2 – loop vent	B a vent that connects to between two and eight fixture traps
3 – horizontal branch	C a pipe that connects two or more fixture drains to the main portion of a system
4 – branch vent	D a vent that connects a fixture trap to another vent or ends in open air
5 – relief vent	E a vent that connects one or more individual vents with a stack
6 – circuit vent	F a pipe that circulates air between a drainage and a vent system

**Exercise 5. Fill in the blanks with the correct words and phrases from the word bank**

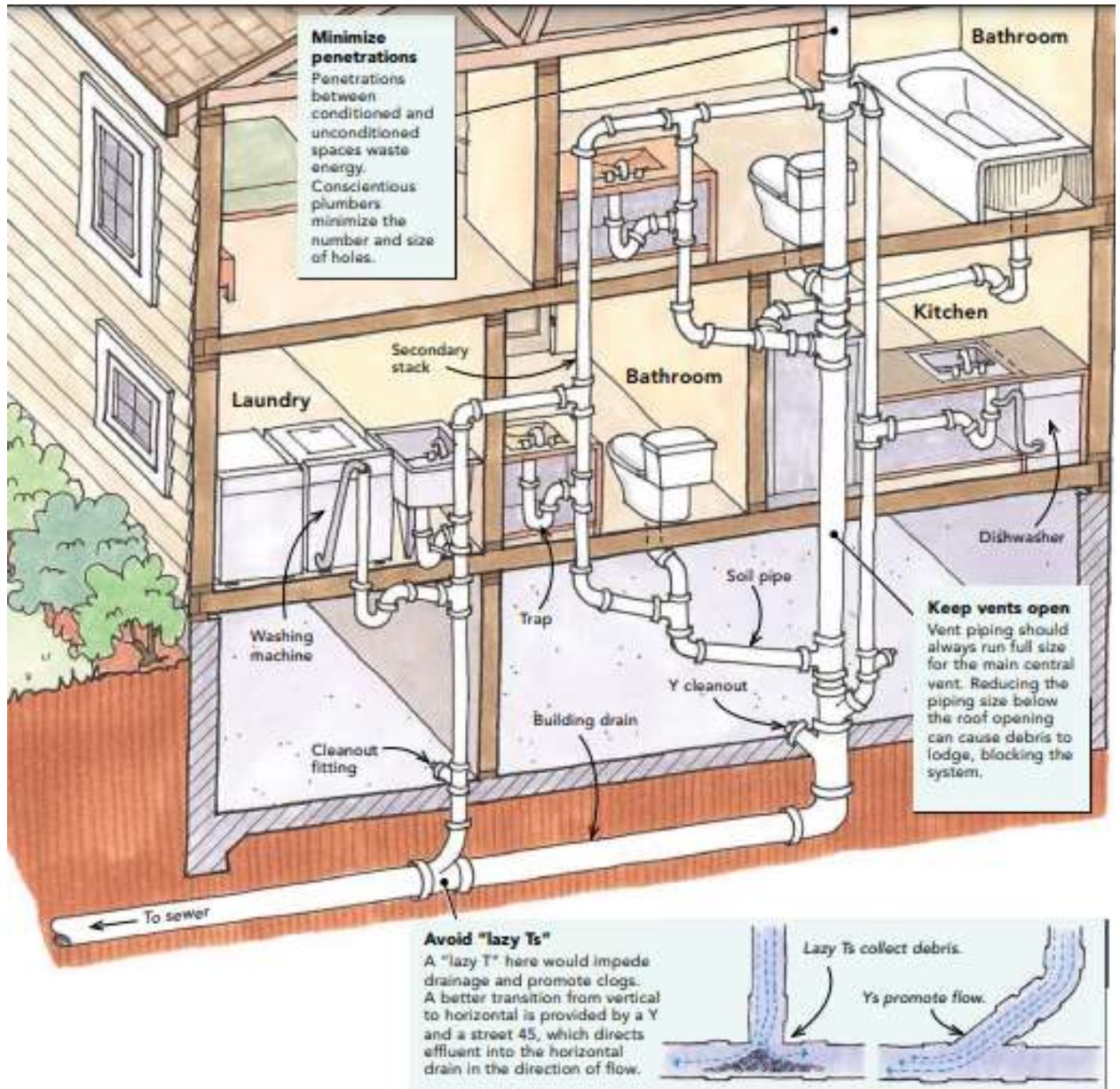
**Word bank: venting, island venting, drainage fixture unit, fixture branch**

- 1 You will need to use \_\_\_\_\_ to reach the sink in the middle of the room.
- 2 Be sure to know the correct \_\_\_\_\_ measurement for that fixture.

3 You can use a single \_\_\_\_\_ system for all the fixtures in the room.

4 You need to install a(n) \_\_\_\_\_ to connect those drains to the system.

**Exercise 6. Study the picture «Installation of a drainage system in the house». Write what tools and materials you will need to work in the laundry, bathroom, and kitchen.**



## 12. WATER SERVICE INSTALLATION

### Vocabulary:

trench safety	траншейная безопасность
backfill	засыпка
burial-depth	глубина захоронения
sleeve	рукав
water service	водоснабжение
incoming	приходящий
outgoing	исходящий
trickle indicator	индикатор струи
water meter	водомер
water main	водопроводная магистраль
water service pipe	водопроводная труба

### Exercise 1. Read and translate the email from a plumbing company owner to his employees

#### Water Service Installation

TO: All Employees  
FROM: tom@gainespumbingco.com  
SUBJECT: New project / division of tasks

To All Employees:

I am pleased to announce that our company has won the contract to provide water service to the new university business school building. This is a major project that presents a great opportunity for our company. We will be digging the trench, laying the required pipes, and connecting the pipes to the interior plumbing.

We will need hard work from all employees to make this project a success. Duties will be as follows:

Kurt Wilcox's team will dig the trench and place backfill upon completion. Sue Harmon will be responsible for trench safety. This team must ensure an appropriate burial-depth at all locations.

Chris Simmons' team will lay the water service pipe and connect it to the water main.

You will need to connect the water utility to arrange a time for the connection.

Diana Staley's team will connect the pipe into the building's plumbing. The building contractor has already carved a sleeve for the pipe to fit through. This



team will contract the water utility for the appropriate water meter to install. They should also provide a precise trickle indicator. Last, the team should check to make sure both the incoming and outgoing connections are working properly.

With your help I know this project will be successful.

Sincerely,

Tom Gaines

**Exercise 2. Answer the questions:**

- a) What are some parts of a water service?
- b) How are water pipes connected in your country?
- c) What grammatical phenomena can you analyze in the text?
- d) Find in the text the sentences in the Future Simple. Read them and analyze the verbs.

**Exercise 3. Choose the correct answers having read the email from a plumbing company owner to his employees**

- 1 What is the main purpose of the email?
  - A to explain how to install a water service pipe
  - B to explain where the new job is located
  - C to assign duties for a large new job
  - D to correct employee's mistakes on a previous job
- 2 Which of the following will NOT involve the water utility?
  - A getting a water meter
  - B obtaining a trickle indicator
  - C checking the incoming and outgoing connections
  - D finding time to connect pipe to the water main
- 3 What has the building contractor already done?
  - A joined the pipe to interior plumbing
  - B installed a sleeve in the building's foundation
  - C contacted the water utility
  - D found a good trickle indicator

**Exercise 4. Match the words (1–5) with the definitions (A–E)**

1 – trench safety	A steps workers take to protect themselves while in a ditch
2 – burial-depth	B a passage in a wall through which a pipe can be placed
3 – water service	C loose soil placed into a dug-out area
4 – backfill	D how deep underground a pipe is placed
5 – sleeve	E piping outside a building that connects a water source to piping inside a building

## Exercise 5. Choose where the words best fit the blanks

### 1 incoming / outgoing

A The \_\_\_\_\_ connection must not be working because water is collecting inside.

B Please check the \_\_\_\_\_ connection, because there is no water in the house.

### 2 trickle indicator / water meter

A No water is running, but the \_\_\_\_\_ shows that there is a leak.

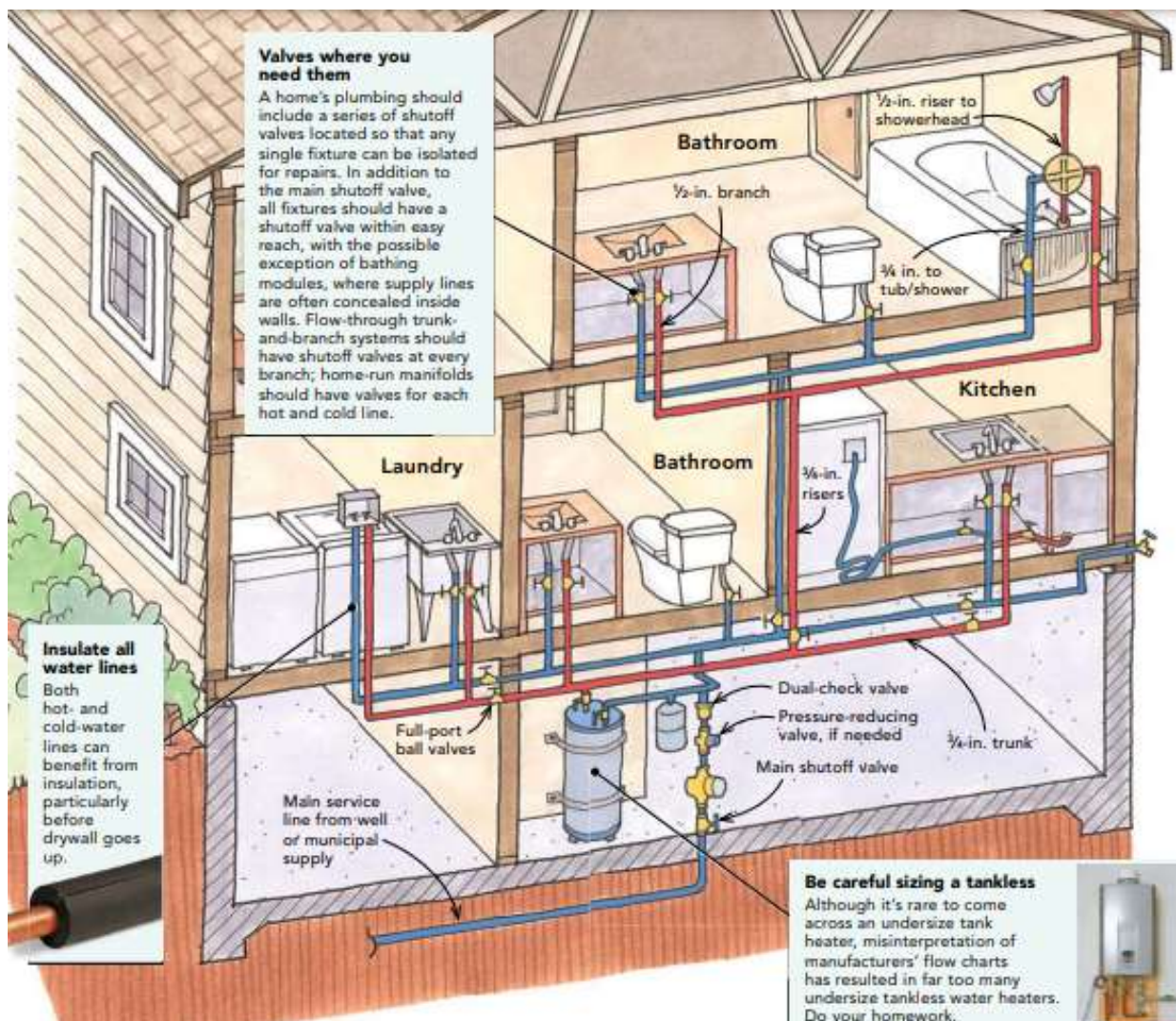
B According to the \_\_\_\_\_, you used much more water this month than last.

### 3 water main / water service pipe

A We called an expert plumber to lay a \_\_\_\_\_ into our new house.

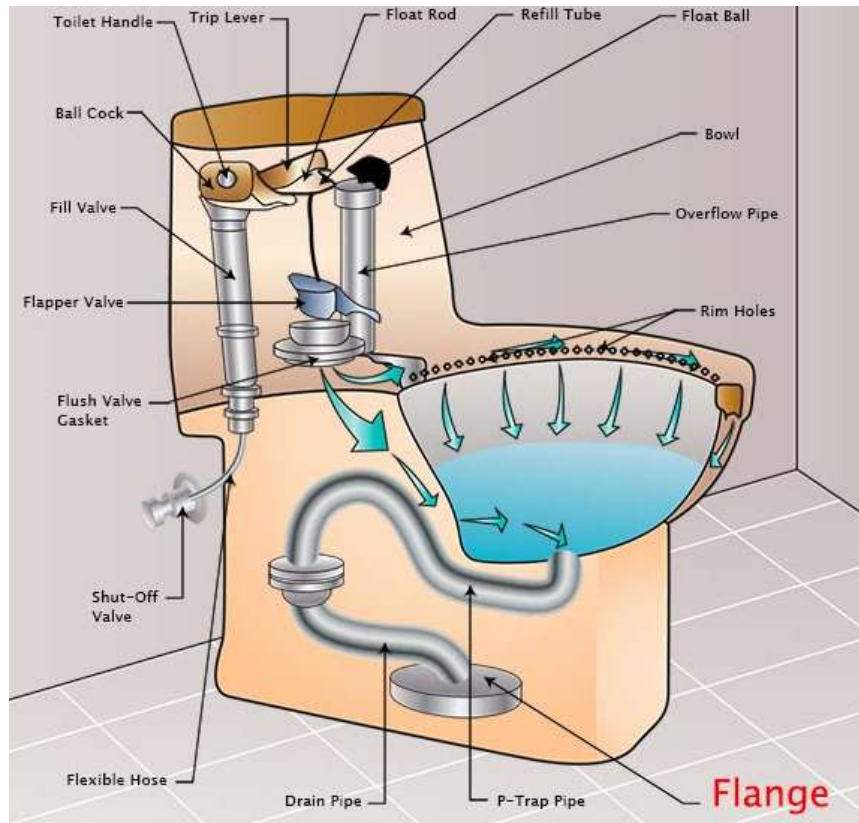
B There was a break in the \_\_\_\_\_ that shut off water to several houses.

**Exercise 6. Study the picture «Installation of pipes for cold and hot water». Write what tools and materials you will need to work in the laundry, bathroom, and kitchen.**


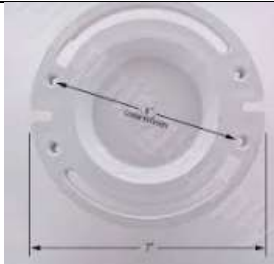



### 13. TOILET AND SINK INSTALLATION

**Exercise 1. Study the drawing and translate the main components of the toilet bowl:**



**Exercise 2. Translate the words and make up sentences with these words:**

	<p>rubber gasket</p>
	<p>closet flange</p>
	<p>one-piece toilet</p>

	<p>two-piece toilet</p>
	<p>tank-to-bowl gasket</p>
	<p>tank supply</p>
	<p>closet bolt</p>

### Exercise 3. Read and translate the text

#### Toilet Installation

You will need:

1 tank-to-bowl gasket

1 chrome-finish copper tube supply

1 set including: 2 ¼" closet bolts, flat washers, and hex nuts

1 tube of caulking

1 tubing cutter

2 adjustable wrenches

1 adjustable pliers

1 flat-head screwdriver

1 hacksaw

#### Installing Guides for a Two piece Toilet:

Step 1. Secure the tank and bowl using two non-corrosive bolts. Seal each tank bolt with a rubber gasket to create a watertight seal.

Step 2. Install the tank-to-bowl gasket over the threaded part of the flush valve. This prevents the water transferring from the tank to the bowl from leaking.

Step 3. Cut the tank supply tubing to the correct length. Use it to connect the water supply and fill valve. Secure the tubing using the nut provided with the tank.

Step 4. Install the closet flange to the drain pipe. Seal the connection with a wax seal.

Step 5. Use two closet bolts to secure the toilet base to the closet flange.

Step 6. If necessary, seal the base of the toilet to the floor using caulk.

**For a One-Piece Toilet:** Follow steps 3–6 as listed above.

#### Exercise 4. Answer the questions:

- a) What are some types of toilet?
- b) What are some things used to install a toilet?

#### Exercise 5. Match the words (1–7) with the definitions (A–G)

1 – closet flange	A a toilet that is sold in separate parts which the buyer must assemble
2 – one-piece	B made of material that will not easily wear away or erode
3 – tank supply	C a pipe fitting to which a toilet is bolted to mount it to the floor
4 – tank-to-bowl gasket	D a foam-rubber gasket used to keep water that leaves the toilet tank from leaking out
5 – two-piece	E a fastener that secures a toilet to the floor
6 – closet bolt	F a toilet that is sold as one solid object
7 – non-corrosive	G a chrome-finished, copper tubing that connects to a fill valve

#### Exercise 6. Read and translate the text.

##### Sink Installation

Dear Mr. Jensen,

Here is the estimate for the installation of a new kitchen and a new bathroom sink. Included in the estimate are the following:

- The layout and assembly of both sinks. This includes permanently securing the kitchen sink with fastening clips.
- Costs for compression coupling connections, lavatory supplies, trap adapters, and slip joints for both sinks. The kitchen sink will need a continuous waste assembly. It also includes other installation materials such as adhesive latex caulk.

- Costs for taking away and disposal of all trash resulting from this project.

The estimate does not include the cost of purchasing the new sinks for the kitchen and bathroom. The cost of sinks depends on whether you choose pre-

molded, stainless steel or cast-iron sinks. We can help you choose the type of sink that best fits your needs.

This estimate does not include the cost of any additional labor. If excess labor beyond installation is needed, it will be added to the estimate.

Estimated price:	Kitchen Sink Installation	\$230.00
	Bathroom Sink Installation	\$115.00

<b>Total Price:</b>		<b>\$345.00</b>
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If you have any questions regarding the estimate, please call me at 555-2678.

Thank you,

Harriet Lancaster

Owner, Lancaster Plumbing

### Exercise 7. Fill in the blanks with the correct words and phrases from the word bank

**Word bank: stainless steel, excess, cast iron, compression, coupling, connection, adhesive, latex caulk**

- 1 The plumber wiped away the \_\_\_\_\_ pipe cement.
- 2 \_\_\_\_\_ is a good material for sinks because it does not rust.
- 3 James used \_\_\_\_\_ to seal the kitchen sink tightly to the countertop.
- 4 The \_\_\_\_\_ sink was molded into an oval shape.
- 5 A(n) \_\_\_\_\_ is needed to hold the pipes together.

### Exercise 8. Retell the text (10–15 sentences).

## 14. SEPTIC SYSTEMS



### Vocabulary:

a septic system –	септическая система
household –	домашнее хозяйство
a soil absorption –	поглощение почвы
grease –	жир
to separate –	отделять
environmental –	экзогенный
local government –	местное правительство

to require –	требовать
benefit –	выгода
concrete septic tanks –	бетонные септики
steel septic tanks –	стальные септики
fiberglass septic tanks –	септики из стеклопластика
aerobic septic tanks –	аэробные септики

**Exercise 1. Read the text and answer the question «What is a septic system?»**

A septic system is an underground treatment facility for managing wastewater in a household. It consists of a septic tank and a drain field or a soil absorption capability. It ensures that the plumbing system of the house will not be filled with organic matter or scum, or solids such as grease, oil, or soil. This system also helps to separate wastewater properly so that the groundwater will not be contaminated and cause a health and environmental problem in your property.

Usually, a septic system is necessary if a house is on a raised area or far from the sewage pipes installed by the water supply company or the local government. According to the Australian Bureau of Statistics, about 95 per cent of homes in NSW rely on the local sewerage system for their wastewater disposal, while only 4 percent require a septic system.

**Exercise 2. Cover the text and do the tasks after it.**

**Different types of septic tanks can cater to your requirements**

State governments in Australia regulate the design and installation of the septic system based on the Australian Standards (1547 and 1546). A design accreditation must be secured with NSW Health before installation, and any design above 2,500 litres must comply with additional regulations, per WaterNSW.

Assuming you're complying with the relevant standards, you have free rein in choosing the type of septic tank to install at home. The durability and strength of your septic system will depend on the materials you pick.

- Concrete septic tanks require less maintenance than those made from other materials. The disadvantage, however, is that concrete may crack and clog, and these problems can remain undetected for a long time. Regular manual inspections of a concrete septic system are necessary.

- Steel septic tanks will not last longer than concrete because this material is prone to rust and can lose its structural integrity in due time. It has an advantage when replacements are required, though, as this can be done part by part, so there's no need to replace the whole tank. It's also easier to spot rust because signs of corrosion on the baffles will not be hard to miss.

- Fiberglass septic tanks are probably the most durable of all materials. They won't crack nor rust, unlike concrete or steel tanks. However, its effluent levels may not be as efficient as the first two options. Since fiberglass is light, then the septic tank could shift underground if the soil around it dampens.

- Aerobic septic tanks are most efficient, but they can be expensive to use and to repair, should they break down because they run on electric power.

The installation of a septic system costs significantly less in the long run than installing new pipes to connect your property to the sewer lines. You might pay within the range of \$5,000 to \$10,000 for a septic system of a four-bedroom house, but this is a one-time expense. City sewer connections, on the other hand, can cost anywhere from \$500 to \$20,000 but this rate also depends on the regulations of your local government, which might not even include the maintenance fees.

**Mark the sentences *true* or *false*:**

1. Concrete septic tanks will not last longer than concrete because this material is prone to rust and can lose its structural integrity in due time.

2. Fiberglass septic tanks are most efficient, but they can be expensive to use and to repair, should they break down because they run on electric power.

3. Steel septic tanks will not last longer than concrete because this material is prone to rust and can lose its structural integrity in due time.

4. Aerobic septic tanks are probably the most durable of all materials. They won't crack nor rust, unlike concrete or steel tanks.

**Choose the correct variant:**

1. This system requires less maintenance than those made from other materials. The disadvantage, however, is that concrete may crack and clog.

- a) Concrete septic tanks
- b) Fiberglass septic tanks
- c) Aerobic septic tanks

2. This system is probably the most durable of all materials. They won't crack nor rust, unlike concrete or steel tanks. However, its effluent levels may not be as efficient as the first two options.

- a) Aerobic septic tanks
- b) Fiberglass septic tanks
- c) Concrete septic tanks

3. This system has an advantage when replacements are required, though, as this can be done part by part, so there's no need to replace the whole tank.

- a) Aerobic septic tanks
- b) Fiberglass septic tanks
- c) Steel septic tanks

**Complete the sentences, according to the text:**

1. Usually, a septic system is necessary if...
2. The installation of a septic system costs...
3. Concrete septic tanks require...
4. Fiberglass septic tanks are...
5. Steel septic tanks will not last longer than...
6. Aerobic septic tanks are probably...



## 15. WELDING

### Vocabulary:

welding	сварка
to join	соединять
bolting	болтовое соединение
riveting	клепка
arc	дуга
flux	флюкс
submerged	погруженный
welding rod	сварочный электрод

### Exercise 1. Read and translate the text

#### Welding

Welding is a process when metal parts are joined together by the application of heat, pressure, or a combination of both. The processes of welding can be divided into two main groups:

- pressure welding, when the weld is achieved by pressure and
- heat welding, when the weld is achieved by heat. Heat welding is the most common welding process used today.

Heat welding is used instead of bolting and riveting in the construction of many types of structures, including bridges, buildings, and ships. It is also a basic process in the manufacture of machinery and in the motor and aircraft industries. It is necessary almost in all productions where metals are used.

The welding process depends greatly on the properties of the metals, the purpose of their application and available equipment. Welding processes are classified according to the sources of heat and pressure used.

The welding processes widely employed today include gas welding, arc welding, and resistance welding. Other joining processes are laser welding, and electron-beam welding.

#### Gas Welding

Gas welding is a non-pressure process using heat from a gas flame. The flame is applied directly to the metal edges to be joined and simultaneously to a filler metal in the form of wire or rod, called the welding rod, which is melted to the joint. Gas welding has the advantage of using equipment that is portable and does not require an electric power source. The surfaces to be welded and the welding rod are coated with flux, a fusible material that shields the material from air, which would result in a defective weld.

#### Arc Welding

Arc Welding is the most important welding process for joining steels. It requires a continuous supply of either direct or alternating electrical current. This current is used to create an electric arc, which generates enough heat to melt metal and create a weld.

Arc welding has several advantages over other methods. Arc welding is faster because the concentration of heat is high. Also, fluxes are not necessary in

certain methods of arc welding. The most widely used arc-welding processes are shielded metal arc, gas-tungsten arc, gas-metal arc, and submerged arc.

### Shielded Metal Arc

In shielded metal-arc welding, a metallic electrode, which conducts electricity, is coated with flux and connected to a source of electric current. The metal to be welded is connected to the other end of the same source of current. An electric arc is formed by touching the tip of the electrode to the metal and then drawing it away. The intense heat of the arc melts both parts to be welded and the point of the metal electrode, which supplies filler metal for the weld. This process is used mainly for welding steels.

#### Exercise 2. Answer the questions:

- a) How can a process of welding be defined?
- b) What are the two main groups of processes of welding?
- c) How can we join metal parts together?
- d) What is welding used for nowadays?
- e) Where is welding necessary?
- f) What do the welding processes of today include?
- g) What are the principles of gas welding?
- h) What kinds of welding can be used for joining steels?
- i) What does arc welding require?
- j) What is the difference between the arc welding and shield-metal welding?

#### Exercise 3. Find the following words and word combinations in the text:

Сварка давлением, тепловая сварка, болтовое (клепаное) соединение, процесс сварки, зависеть от свойств металлов, имеющееся оборудование, сварочный электрод, плавкий материал, дефектный сварной шов, непрерывная подача электрического тока, источник электрического тока.

#### Exercise 4. Match the English words (1–10) with their Russian equivalents (A–J)

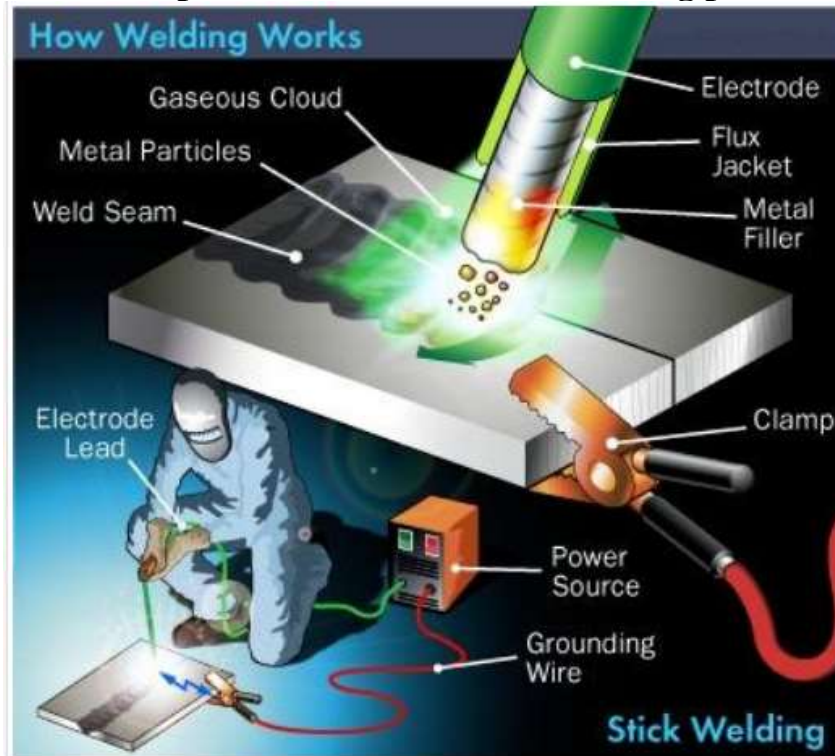
1. heat welding	A. флюкс
2. riveting	B. плавкий
3. gas welding	C. лазерная сварка
4. arc welding	D. сварка нагреванием
5. resistance welding	E. клепка
6. laser welding	F. электронно-лучевая сварка
7. pressure welding	G. электродуговая сварка
8. electron-beam welding	H. контактная сварка
9. flux	I. газосварка
10. fusible	J. сварка давлением

**Exercise 5. Translate the following words and phrases:**

to join, instead, basic, to depend, purpose, available, equipment, source, flame, edge, simultaneously, filler, wire, rod, to melt, joint, advantage, to require, surface, coated, to shield, touching, tip, bolting, to manufacture.

**Exercise 6. Retell the text (10–15 sentences).**

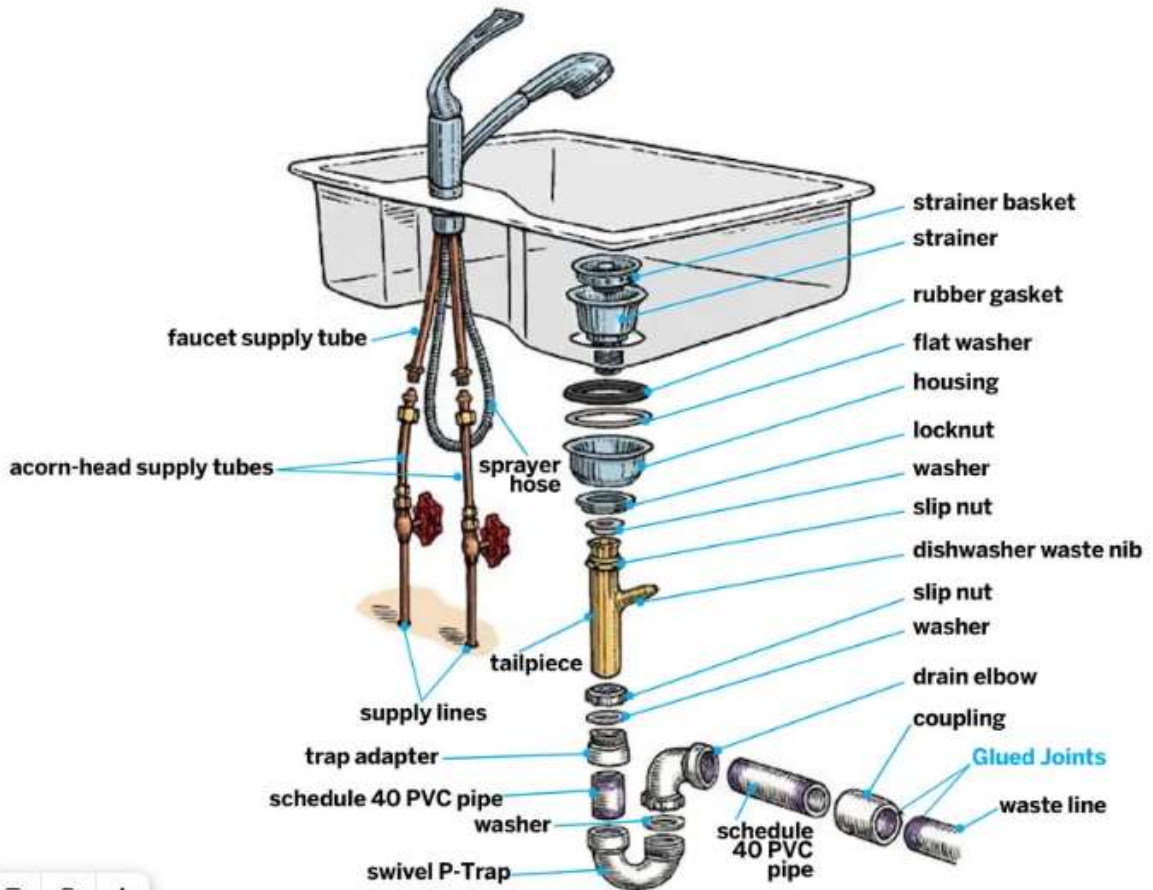
**Exercise 7. Look at the picture and describe the welding process:**



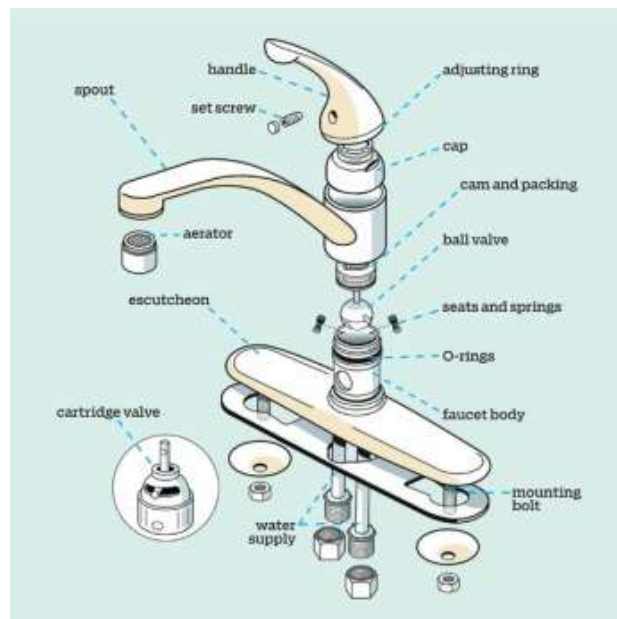
## CHECK YOUR KNOWLEDGE

Give the Russian equivalents:

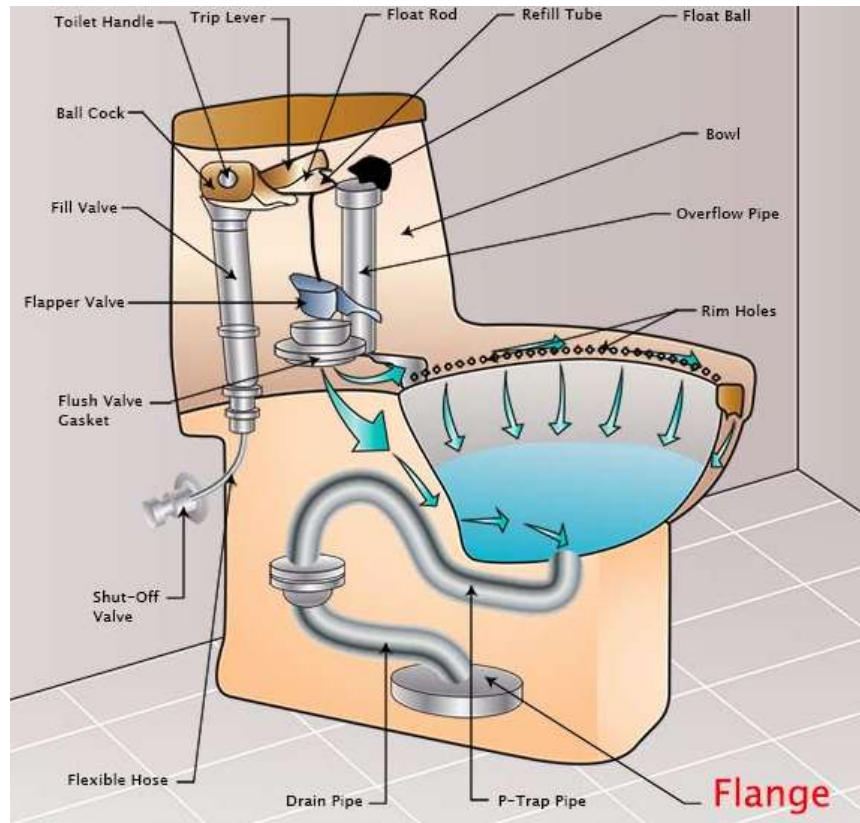
a)



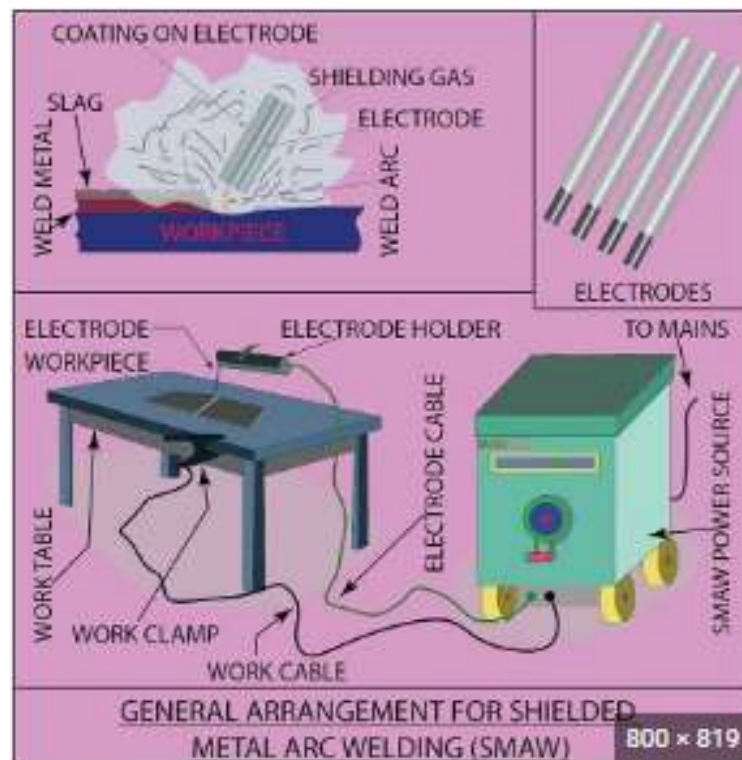
b)



c)



d)



## СПИСОК ЛИТЕРАТУРЫ

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