

Ministry of Health of Ukraine
Odessa National Medical University
Department of Pharmacognosy

**Field training practice
pharmaceutical botany**

A diary

student (s) _____



Odesa 2022

*Recommended by the Central Executive Committee of the Faculty of Pharmacy
ONMedU*

(Minutes No. __)

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Field training in pharmaceutical botany. Diary \ Ya.V. Rozhkovsky, B.V. The attack, N.V. Gerasimyuk, I.A. Boyko, V.V. Chernogoryuk, I.M. Shevchenko, S.I.Bohatu. - Odessa: ONMedU Publishing House, 2022 - 41 p.

The publication is intended for full-time and part-time students in the specialty “Pharmacy” and is a reporting document on field training practice, provides familiarity with general provisions, thematic plans, responsibilities for attending field practice, and also contains tasks for independent practical work of students.

Introduction

Field training practice is an integral and effective component of the educational process in pharmaceutical botany. It expands, deepens the acquired theoretical knowledge and skills for identifying and determining plants, and also develops the ability to apply them in solving practical, information retrieval, resource-aware and other tasks of specialized disciplines.

The student is obliged to:

- familiarize yourself with the main recommendations on the rules of practical training and the presentation of the results in a diary;
- to receive from the head (teacher) methodological recommendations and advice on its design;
- keep a diary of practice, regularly complete practical tasks.

At a certain time, it is necessary to hand over the created collections, a designed diary and receive a credit.

General Provisions

The purpose and objectives of the practice:

- consolidate, expand and replenish theoretical knowledge and practical skills in morphology, systematics with the basics of phytoecology;
- develop the ability to determine by morphological characteristics the medicinal plant belongs to the family, genus, species;
- acquaint with the rules of herbarization of plants, the design of the herbarium, the collection, processing and preservation of plant material;
- acquaint students with the conditions for growing indoor plants;
- form a careful attitude to plants, introduce rare medicinal plants and their protection.

Possible strongholds of practice: botanical gardens, squares, parks, forests, meadows, ponds, greenhouses, gardens, fields, and the like.

The content of the practice: the field training in pharmaceutical botany is 90 hours, involves *independent classes on the thematic plan, the implementation of practical tasks, keeping a diary, reporting and receiving credit.*

Each day of practice consists of the following stages of work:

1. Acquaintance with the structure of various phytocenoses, with the conditions of plant growth.
2. Collection of collection material.

3. Processing and design of the collected material, photographs, recording in what stall.

Accessories, recommendations and safety precautions:

- work clothes, comfortable shoes, headgear;
- notebook - draft for notes, pencil;
- a folding knife for digging underground organs of plants;
- a botanical folder with a stock of newsprint;
- paper bags for collecting fruits and seeds;
- a plastic bag for collecting plants for the purpose of description, determination;
- jars with lids (0.25-0.5 L) for fixing plants, fixative (ethyl alcohol 96 0 -glycerin-water in a ratio of 1: 1: 1);
- herbar paper and plastic bags for packaging herbarium;
- folders for storage of herbarium;
- labels.

It is forbidden to collect plants in botanical gardens and artificial plantations, to disrupt protected species.

It is strictly forbidden to drink water from random sources, to try plants or mushrooms, as they can be poisonous.

After working with plant material, wash your hands. Precautions must be observed when working with sharp, cutting, and pricking tools.

Diary rules:

- in the diary on specially designated pages on the specified topic, its content is recorded, then practical tasks are performed. When completing some tasks, it is necessary to photograph these parts of plants, provide photographic materials for offset (see instructions for the implementation and execution of practical tasks);
- entries in the diary are made clearly, without blots, and drawings - in pencil.
- if necessary, pasting of additional pages is allowed,
- The quality of keeping a diary is taken into account when offsetting
- as a reporting document, the diary is kept at the department.

Instructions for the execution and execution of practical tasks

Separate from the plant the organs of the plant indicated for Anna (leaves, underground organs, inflorescences, flowers, fruits, etc.), place three or six objects on a sheet of a beat pen of format A-4 (see the sample in the tasks on the site) Take pictures of objects in bright light, sign the components of the tablet, according to the task. Photographic materials in electronic form are provided for offset.

Instructions for the manufacture of herbarium

A herbarium is a collection of press-dried, attached to a sheet of paper and dried plants.

Stages of herbarization of plants:

- preparatory work;
- collection, processing and drying of plants and their parts;
- installation and storage.

Preparatory work includes:

- carrying out a morphological analysis of the plant specified for herbarization, namely, viewing the literature, illustrations of this donkey, available at the department of herbarium.

Collect plants in a dry sunny year, after the dew has dried. Plants should not be damaged by animals, insects, fungi and the like. It is necessary to collect plants at different periods of vegetation; it will most fully describe the morphological analysis of the object. The herbarium should reflect as much information as possible about the plant (underground organs; the ability to branch or tiller shoots, leaf distribution on the shoot, leaf structure, heterophyllia, type of inflorescence or arrangement of flowers, structure of a single flower; fruits and seeds).

Grassy plants are dug up, roots are shaken off, and, if necessary, washed. In woody plants, pruning or fruit-bearing shoots with leaves are cut by secateurs. If the plant has dioecious flowers, it is necessary to take shoots with male and female flowers. In conifers, branches with male and female cones are cut. Woody plants in which flowers appear before the leaves bloom are harvested twice: with flowers, and later with leaves. Woody plants take a bark sample.

For drying, plants are taken fresh. They plant the plant in paper (newspapers) - "shirts" that absorb moisture well. The plants are laid out so that all parts are carefully spread out, not overlapping one another, there are no folds on the leaves. At the flower and other succulent or fleshy parts, filter paper or cotton wool wrapped in filter paper is placed. If you can't avoid touching parts of the plant, pieces of paper are laid between them. If the plant is very large, then it is cut, but so that the general idea of it is preserved. If the plant has damaged organs or many branches, leaves, flowers or fruits,

some of them can be removed. Thick or fleshy roots, qi were not, rhizomes and other organs of the plant are cut lengthwise before laying. Thick stems are pressed with a knife handle. Prepared for drying, the plant is covered with another sheet of paper and put under a press (10 - 20 kg). Herbar nets are used as a press, which are tightly pulled together with a cord or boards and other improvised means of sufficient size and weight. "Shirts" must be changed daily, and as the plants dry, they are transferred less and less. The preparedness of the dried material is determined as follows:

- if you raise the plant, then it must maintain stability and flexibility, the top does NOT lean down, then the drying is considered complete;
- the green color disappears and there is no sensation of cold and moisture when touched.

An over-dried plant is very fragile and crumbles when touched, and insufficiently dried material quickly turns brown.

A dried plant is sewn onto a sheet of dense, white paper 42x28 cm in size. In the lower right corner of the sheet, a paper clip is attached with a herbar label filled by hand and. The label is compiled in the following way:

A family ...

Genus ...

Species...

Location ...

Place of growth

Date of collection ...

Collected, determined ...

The name of the plant is noted in Ukrainian and Latin.

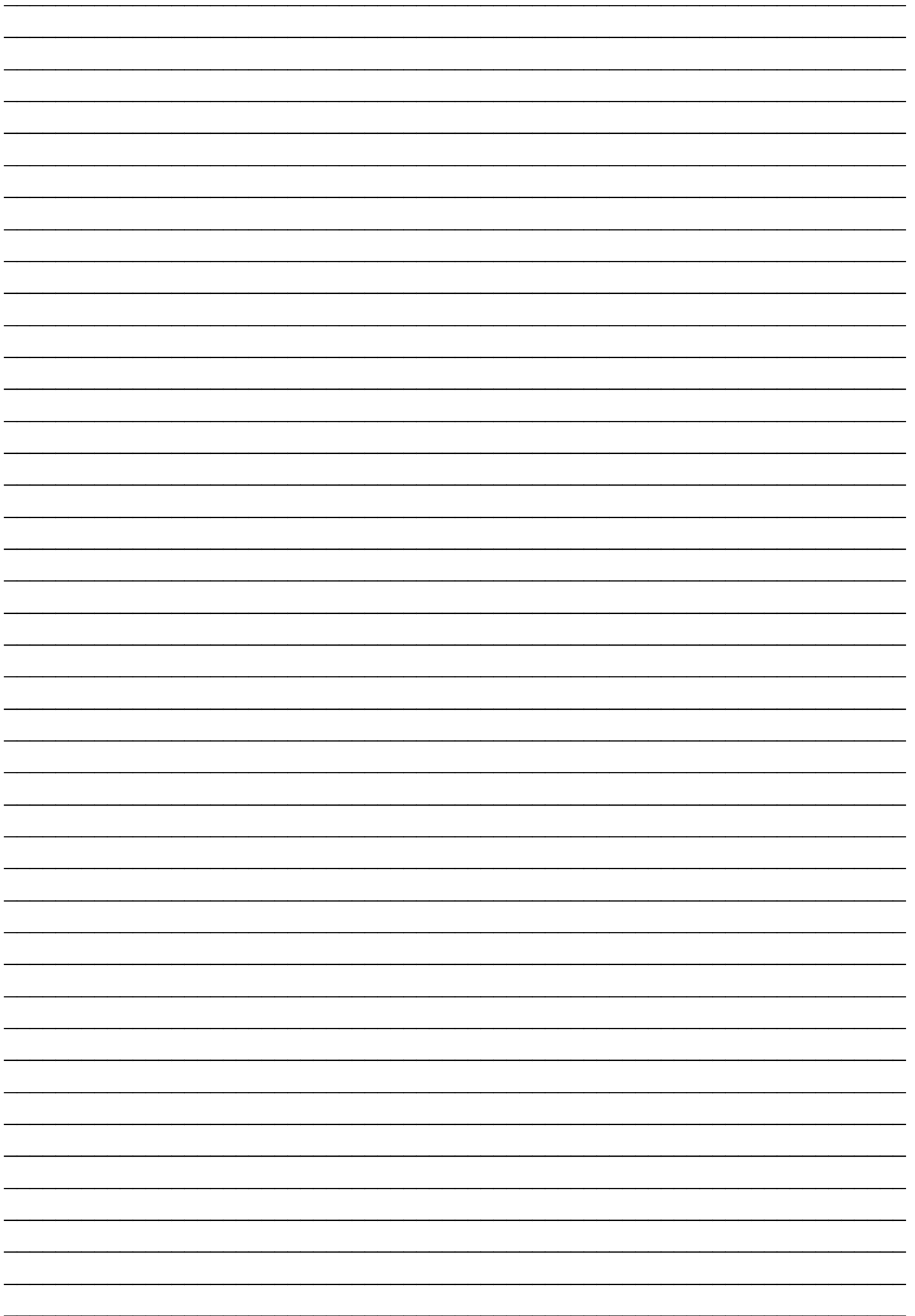
The test for field training is:

- delivery of materials on the tasks of each topic (various dried or fresh plant organs, their photographs in printed and electronic form);
- providing a designed diary;
- knowledge of the systematic affiliation of the plants that are studied, their Russian, Latin names, biological features, practical application.

Student Thematic Work Plan

№	Subject, its conten	Number of hours *	
		practical exercises	student independent work
1	<p><i>Methods of collection, processing and storage of vegetable raw wine.</i></p> <p>Acquaintance with the rules of collection and processing of plant material, the manufacture of a herbarium, the implementation of the tasks proposed by them.</p> <p><i>The design of the diary.</i></p>	2	4
2	<p><i>Vegetative organs of plants.</i></p> <p>Morphological description of the vegetative organs of plants, folding tables, collection of plant material, fixation, drying, selection of photographic materials in electronic and printed form.</p> <p><i>The design of the diary.</i></p>	3	4
3	<p><i>Generative organs of plants.</i></p> <p>Morphological description of the generative organs of plants, compilation of tables, collection of plant material, fixation, drying, selection of photographic materials in electronic and printed form.</p> <p><i>The design of the diary.</i></p>	3	4
4	<p><i>Cultivated plants.</i></p> <p>Acquaintance with the ecological and morphological features of these plants, the collection of plant material.</p> <p><i>The design of the diary.</i></p>	3	4
5	<p><i>Indoor and greenhouse plants.</i></p>		4

	<p>Acquaintance with the ecological and morphological characteristics of these plants, especially cultivation. Filling tables.</p> <p><i>The design of the diary.</i></p>	3	
6	<p><i>Ornamental plants of open soil.</i></p> <p>Acquaintance with the ecological and morphological features of these plants, the definition of their determinants and description, the collection of plant material.</p> <p><i>The design of the diary.</i></p>	3	4
7	<p><i>Weeds.</i></p> <p>Acquaintance with the ecological and morphological features of these plants, the collection, processing of plant material.</p> <p><i>The design of the diary.</i></p>	3	6
8	<p><i>Forest phytocenosis.</i></p> <p>Morphological and geobotanical description of features of these plants. Acquaintance with the ecological and morphological features of these plants. Collection, processing of plant material, manufacture of a microbarbarium.</p> <p><i>The design of the diary.</i></p>	3	6
9	<p><i>Vegetation of meadows.</i></p> <p>Acquaintance with the ecological and morphological features of these plants. Collection of plant material, manufacture of a microbarbarium.</p> <p><i>The design of the diary.</i></p>	3	6
10	<p><i>Vegetation of water bodies, wetlands and coastal lands.</i></p> <p>Acquaintance, collection of plant material, filling out tables.</p> <p>The design of the diary.</p>	3	6



FILLING SAMPLE



English and Latin name of the plant. Morphological description.

White mustard - Sinapis alba

Plant with a height of 30-60 cm with hard pubescence. The basal leaves are petiolar, unevenly deeply pinnate-jagged fates. Stem leaves petiolate, cirrus or dissected. The flowers are yellow in the hands. Pods with a length of 2-4 cm, on an elongating, thin flat-bottoms, 90 ° deviated from the stem.

Place of growth (cultivation): cultivated

Use of a plant and its parts in medicine and other industries:

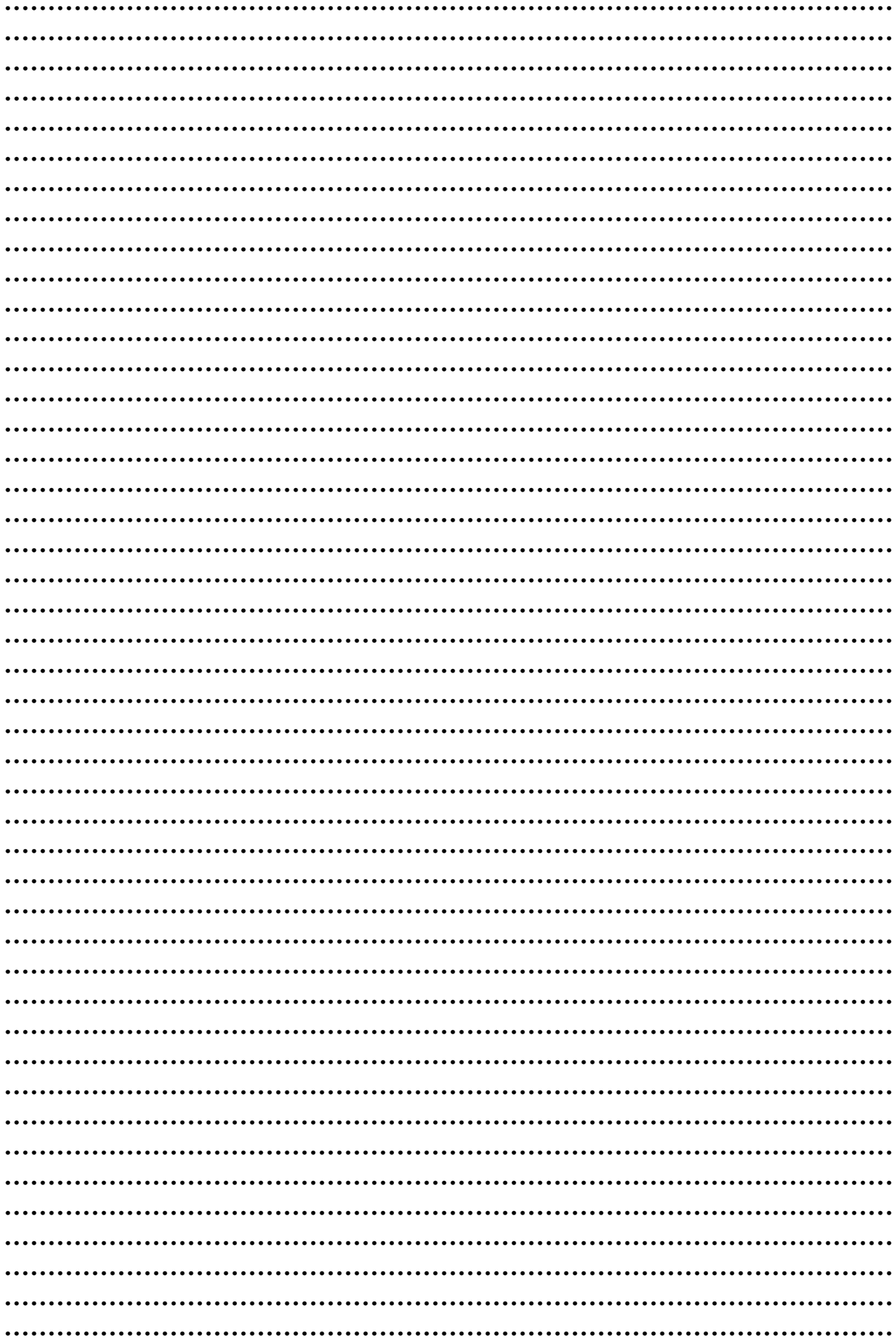
Edible and technical mustard oil is obtained from seeds, and from meal - gyrchich DO NOT flour, mustard plasters, mustard packets, an alcoholic solution of essential oil that irritate the skin, increase blood circulation, distract with neuralgia, rheumatism, radiculitis, catarrhal diseases, hypothermia, bronchi tach, pleurisy, bronchopneumonia.

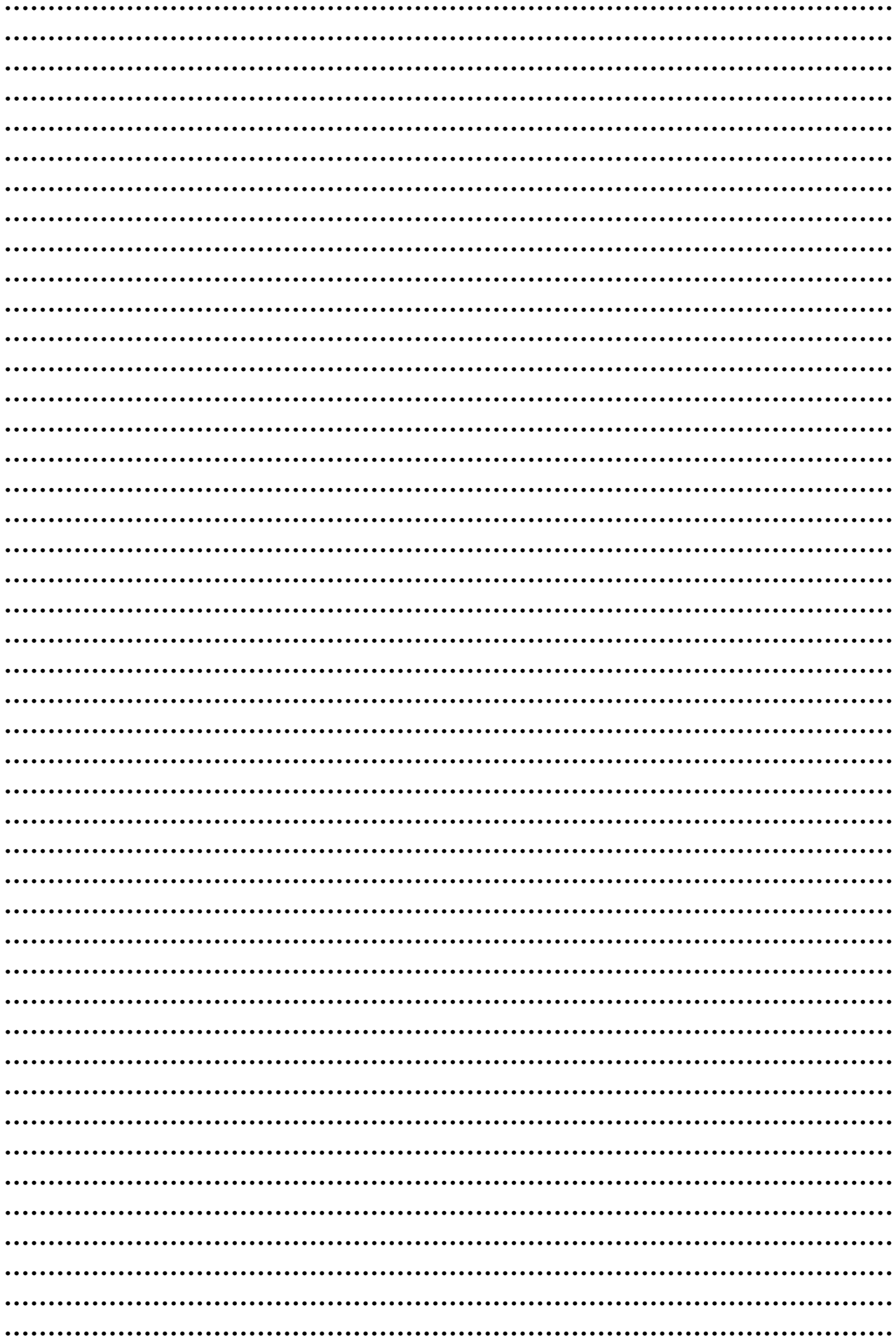
Action: antiseptic, appetizing, digestive, laxative, irritating, distracting, anti-inflammatory, stimulating blood circulation.

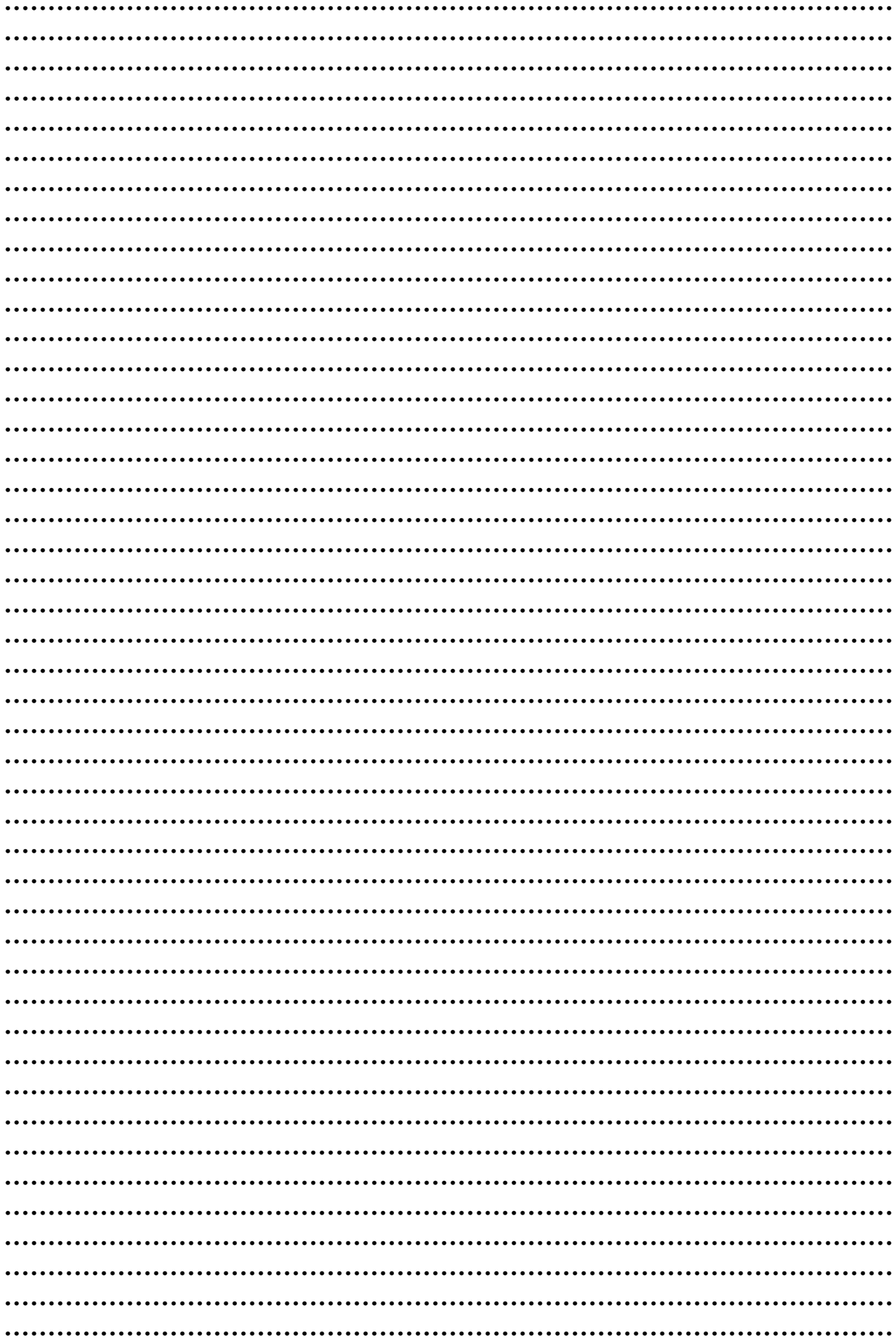
2. Topic: *Vegetative organs of plants*

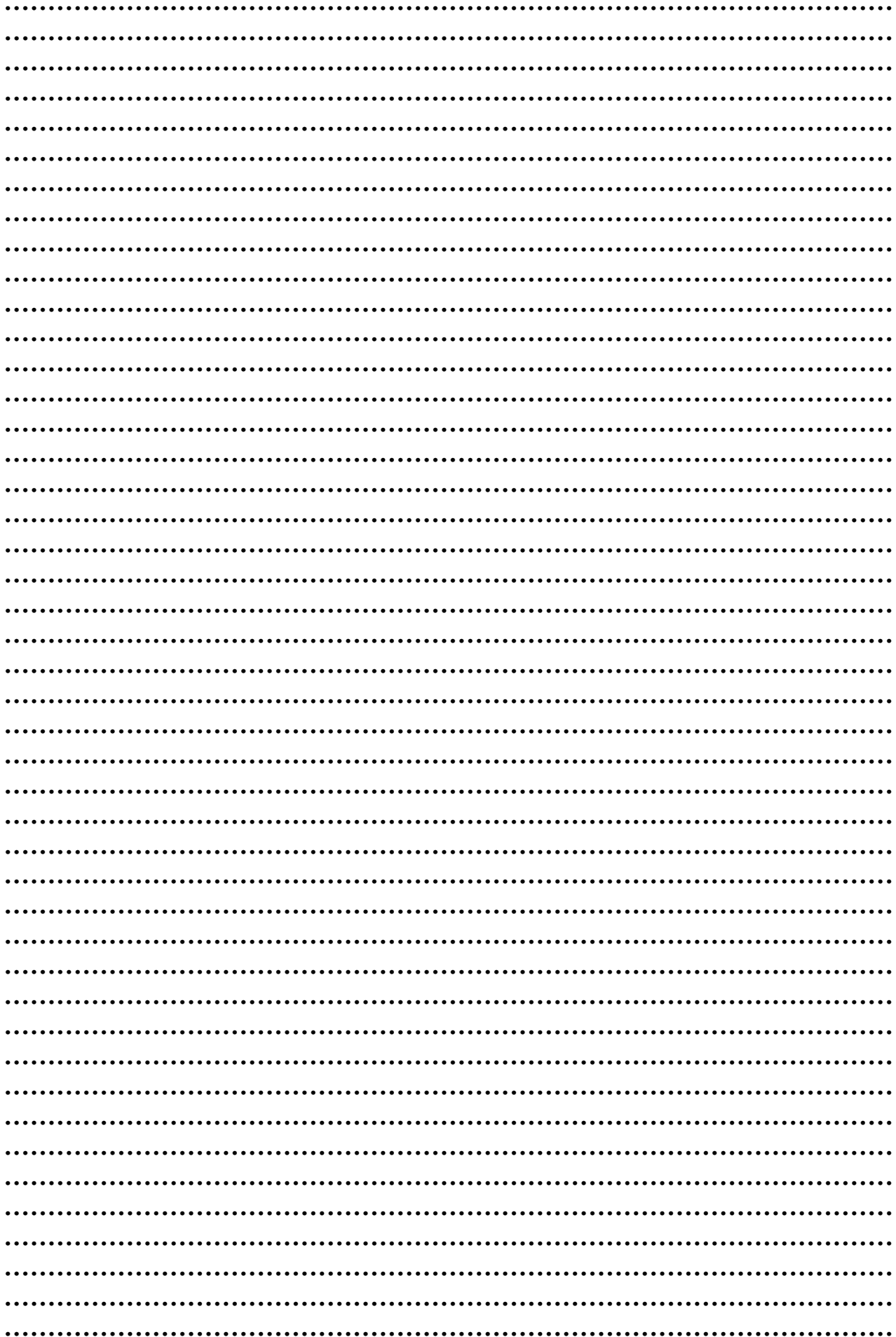
Content of the topic.....

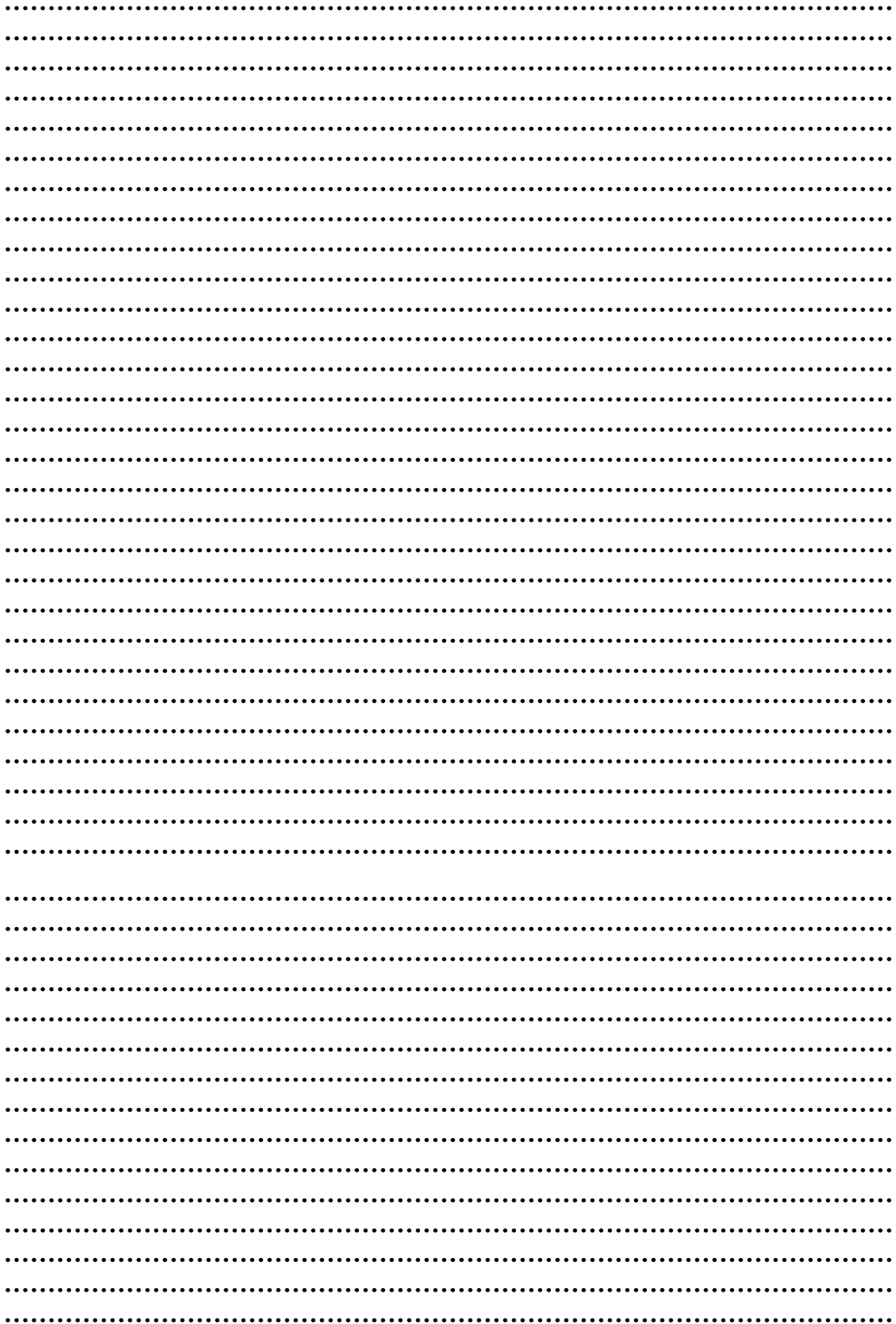
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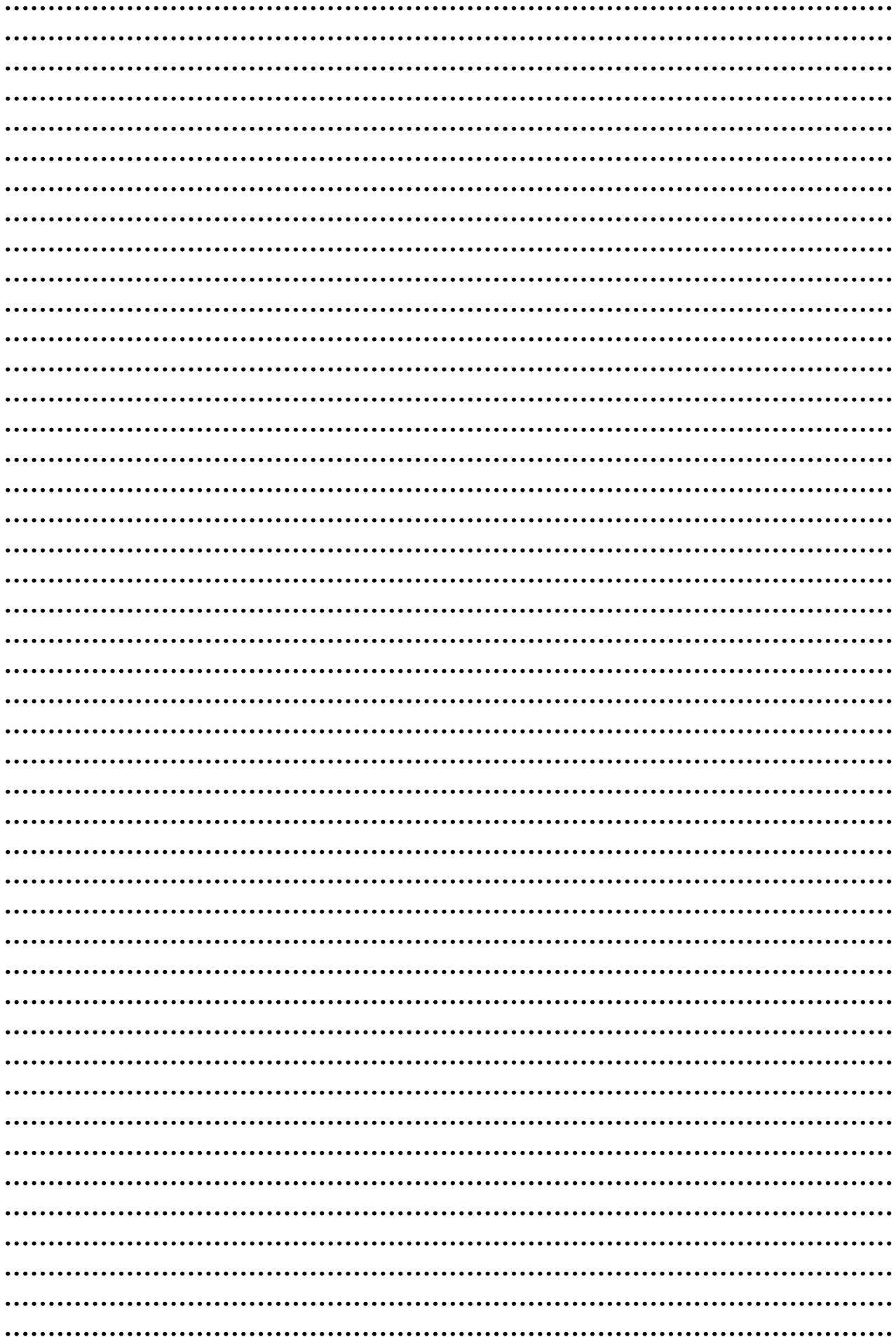


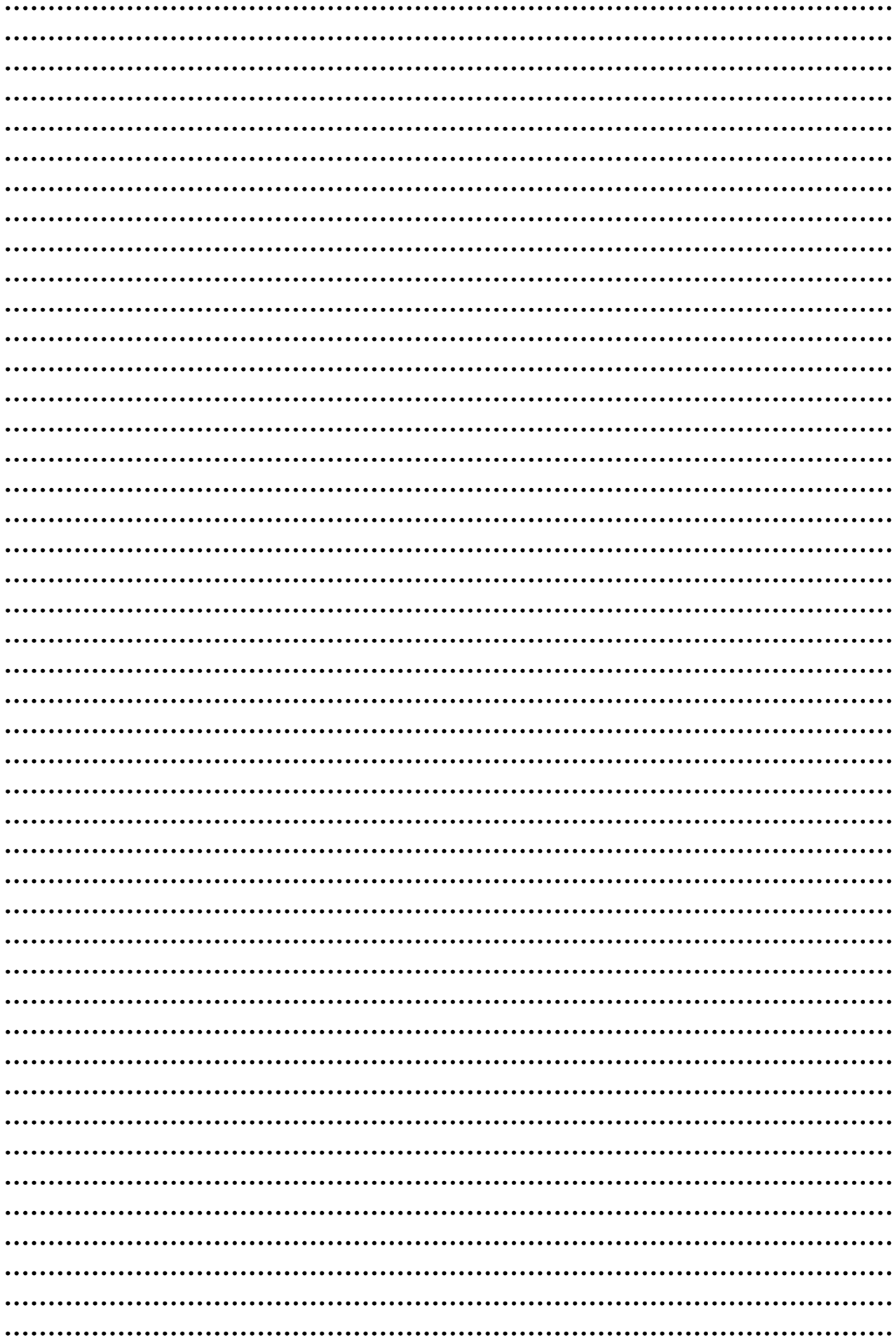


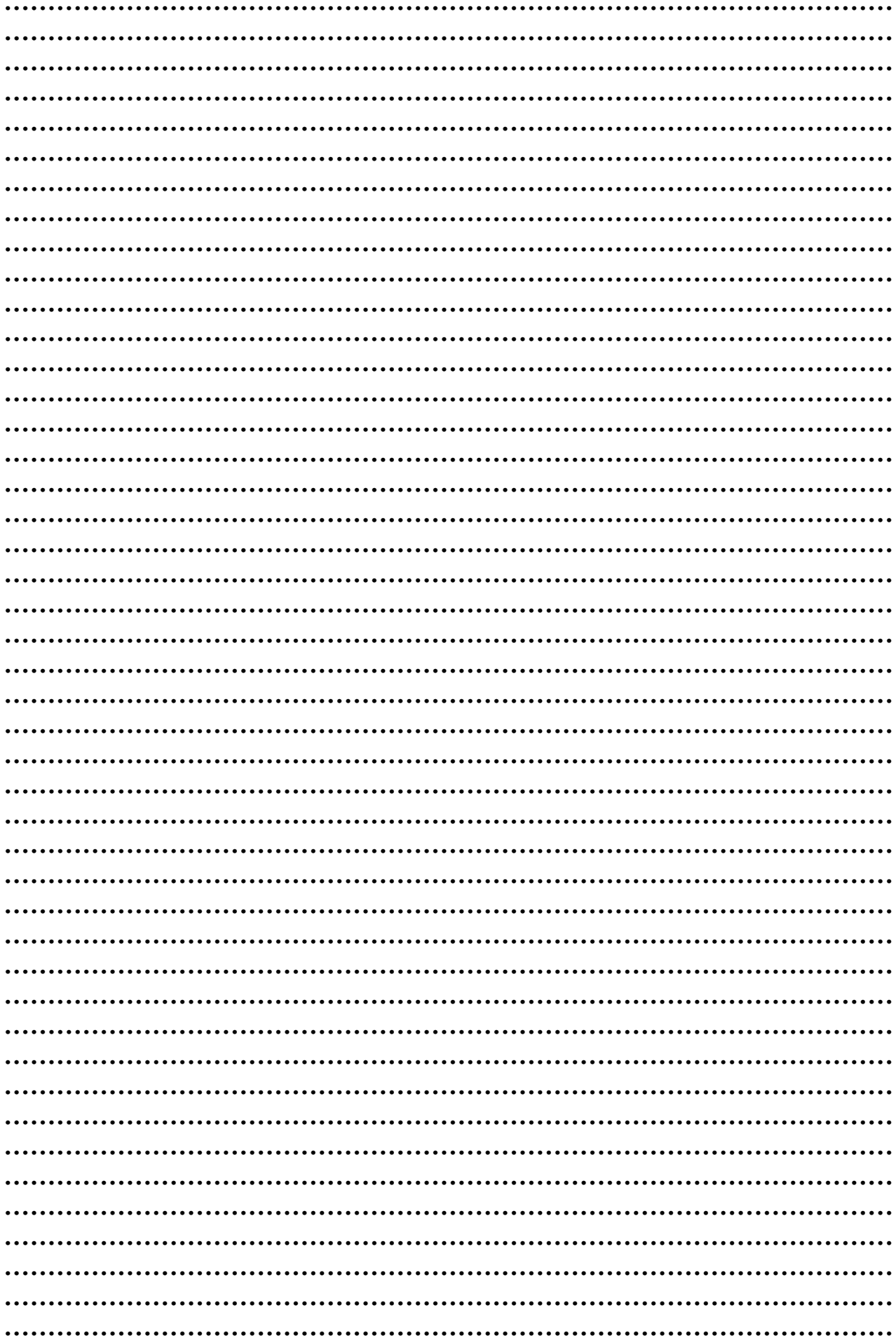


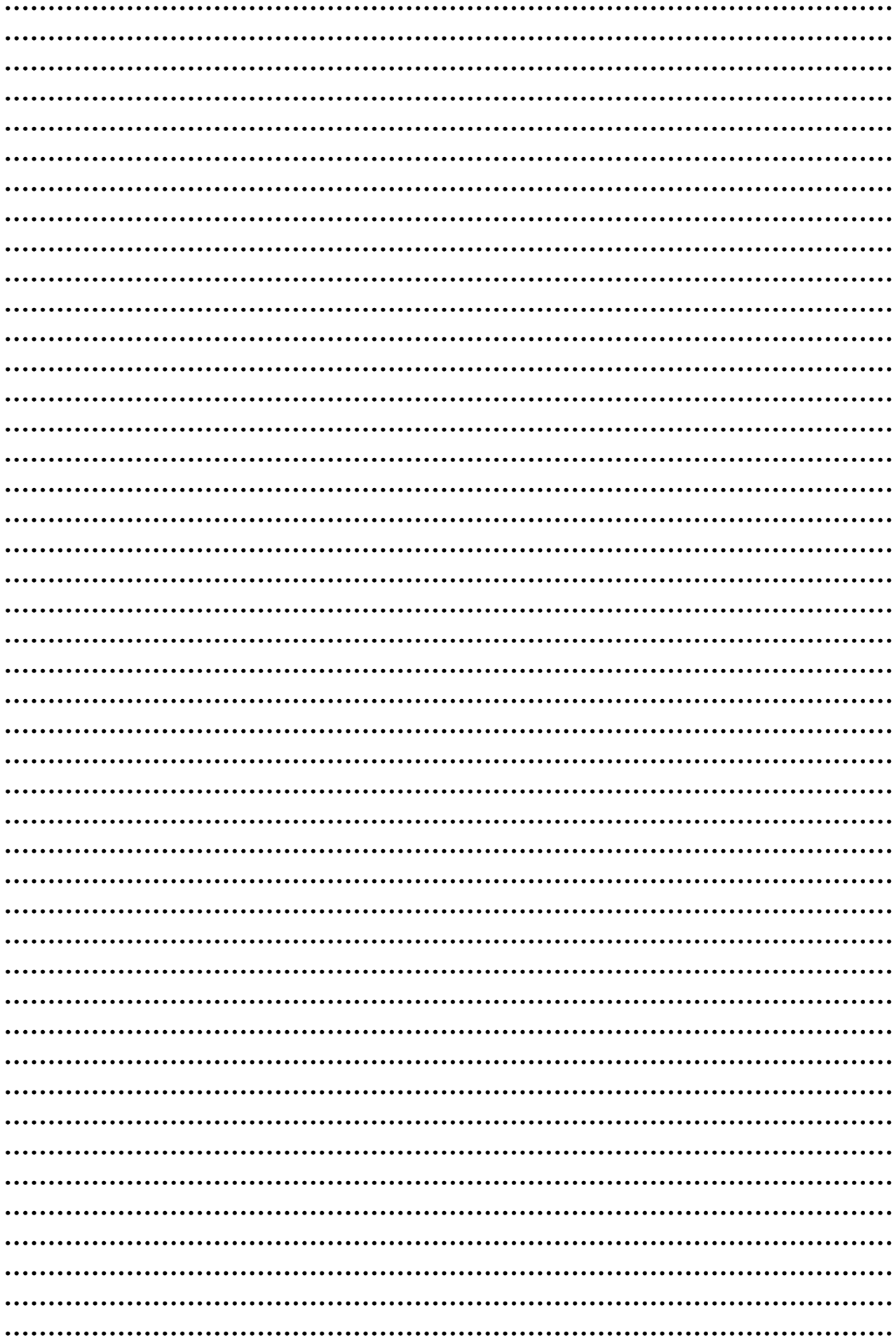


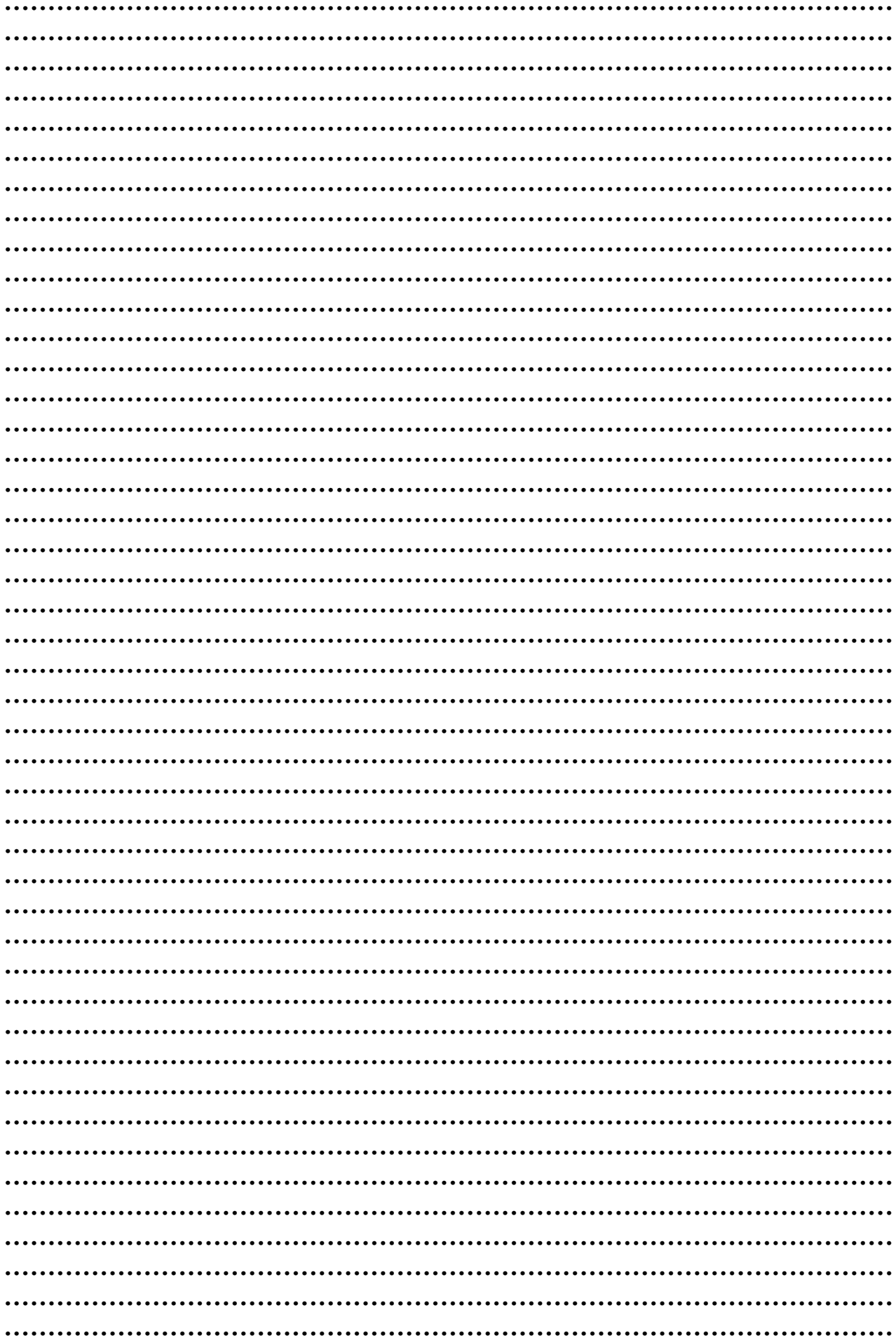












transferred, with the help of the head of the Department of Botany L.V. Reingard, to the university farm in the region of the Small Fountain (French Boulevard, 87). A greenhouse was built on the territory of the garden and the Plants System section was organized.

In 1885, the botanical garden was headed by prof. L. A. Rishavi, who changed the system of flower beds without any systematic plan, and a staff room was also built. Later, an inspection of the botanical garden was conducted. Ministry of Education and University Commission. Work on the management of the garden was considered unsatisfactory and the management of the garden was transferred to prof. F.M. Kamensky in 1895. To improve the garden, it was planned to solve the following problems: - the problem of personnel; - systematization and replenishment of the collection fund; - expanding cooperation with the botanical gardens of the world; - reorganization of the exposition of the garden. Unfortunately, the initiative of Professor Kamensky was not supported by the leadership of the university, and again the question arose about closing the botanical garden on the Small Fountain. However, having examined in detail the work of the garden, the commission concluded that the only botanical garden in the steppe part of the southern Black Sea coast, as well as in the large sea city, is necessary and cannot be closed. The commission also recognized the need to expand the garden and organize a laboratory, library and herbarium in its structure.

From 1912 to 1915, the post of manager was performed by the professor of anatomy and physiology P.P. Polovtsov. The next five years, the work of the garden was led by Professor BB Grinevetsky.

In 1920, the university was reorganized into three separate higher education institutions and the botanical garden remained outside these institutions. Such changes, as well as the frequent change of leadership, negatively affected the state of the botanical garden.

In 1923, D.O. Svirenko. Thanks to his talent as an organizer, a subsidy was received in 1924, and the Botanical Garden received the status of a research, cultural and educational institution. On the basis of the Botanical Garden, scientific work was carried out, the work of the nursery and seed laboratory was restored, excursions were resumed and relations with the botanical gardens of the whole world were restored. So, gradually, the botanical garden turned into a research institution and a team of researchers was formed, which attracted students and graduate students - future researchers.

In 1928, the Botanical Garden was headed by Academician V.I. Lipsky, who gave the botanical garden the last years of his life. He did a great job of streamlining the collection fund of living plants of the garden, the construction of a herbarium, library, chemical laboratory and museum. A systematic study of plant resources of the southwestern part of Ukraine was carried out and Odessa region. Work began on the study of algae in the Black Sea, as a result of which an iodine plant was built on Peresyp (later an agar-agar plant). Also increased excursion attendance at the botanical garden. The rapid development and expansion of the garden, required more land, so in 1930 an agreement was reached with the city authorities to transfer the Marazli cottage to the botanical garden on French Boulevard 85. In the same year, the garden acquired the status of a scientific institution of national significance. Through the efforts of the whole team, the new garden area acquired an

impeccable look. However, in 1932, the territory of the garden, which was located on the site of the Marazli cottage, was transferred to the Central Medical Commission.

In 1933, the garden became part of the research institutions of OSU. Mechnikov and assigned to the Department of Botany. IN AND. Lipsky left the post of director and continued to work as a consultant, and I.O. Vlasenko. The garden was re-planned, greenhouses, greenhouses and greenhouses were repaired. During this period, the botanical garden conducted a number of extensive research projects.

In 1939, G.I. Potapenko was appointed director, who was entrusted with great responsibility for the safety of the collection fund during the Second World War. In the postwar years, the garden required immediate restoration, because was almost completely destroyed.

In 1948, to expand the area, the territory was transferred to the university garden at 48/50 French Boulevard. Since then, the garden has been located in two territories. At that time, associate professor N.Z. was appointed director. Zharenko, and after that - Professor E.M. Kirkopulo. As a result of his scientific work, peach culture has firmly entered the agricultural production of the southwestern regions of Ukraine.

In 1963, the Botanical Garden was given the status of a park-monument of landscape gardening art. The hard work of the team contributed to the development of the garden as an educational auxiliary and a scientific institution.

Today, the Botanical Garden of national importance. Academician V.I. Lipsky, Odessa National University I.I. Mechnikov is the base for training students in the biological field for a number of higher educational institutions in Odessa, Kherson, and Nikolaev. Also, in two areas of the garden, a collection of plants is supported, which is constantly evolving and provides an educational process. Every year, the garden is visited by up to 10,000 excursionists, among whom there are most students. Currently, plants grown in the garden adorn Odessa streets, squares and parks.

Now on the Pharmacopoeia and systematic sites collected more than 200 species of medicinal plants. They ensure that students, employees of the departments of botany and pharmacognosy perform experiments, conduct practical exercises, and prepare plants and plant materials.

The pharmacopoeia educational and demonstration site of the botanical garden of ONU named after II Mechnikov is divided into exposition sections, which in turn are divided into five blocks, for the convenience of care and inspection. Plots of plants are placed according to pharmacognostic classification according to the predominant group of biologically active substances. The life forms of medicinal plants are represented by annual, biennial, perennial herbaceous and shrubby plants. During the vegetative period of plants, with the participation of students, the following is carried out: irrigation and loosening of the soil individually for each type of plant, thinning, removal of weeds and accidentally introduced plants, combating pests and plant diseases, cutting off dead shoots and the like.

	medicinal plants for herbarization and production of morphological collections.			
2.	Conducting a morphological, phenological and ecological-morphological description of the collected plants and determining their systematic position according to the determinant.			
3.	Herbarization of herbaceous and woody plants.			
4.	Production and design of the morphological collection of dry and fixed raw materials.			
5.	Conducting a geobotanical description of the species composition of artificial phytocenosis.			
6.	Determination of the species composition of cultivated plants in open ground: medicinal, vegetable, grain-leguminous and cereal crops.			
7.	Conducting ecological, morphological and phenological descriptions of cultivated open ground plants.			
8.	Determination of the species composition of greenhouse plants.			
9.	The determination of the optimal soil and climatic conditions for growing indoor plants.			
10	Phenological description and ecological-morphological description of tropical and subtropical medicinal plants of the greenhouse.			
11	Determination of species composition and ecological-morphological description of indoor plants.			
12	The cultivation, care and propagation of indoor medicinal plants.			

13	Determination of the species composition and ecological-morphological and phenological description of the types of vegetation of the botanical garden, squares, parks, city streets.			
14	The determination of the species composition of weeds of various growth conditions: field, garden, roadside. Recognition among the species composition of weeds of medicinal and poisonous species.			
15	Conducting an ecological and morphological description of the species composition of medicinal weeds in the studied territories.			
16	Determination of the floristic composition of the woody, bushy, grassy layer of the forest phytocenosis, according to the allocation of the main forest-forming species.			
17	Characterization of the species composition of forest phytocenosis according to its main features: stratification, prosperity, vitality, developmental phenophase, closure of crowns, and the like.			
18	Conducting a geobotanical description of forest phytocenosis.			
19	Characterization of the moss and lichen cover of the forest.			
20	Determination of the species composition and environmental conditions for the growth of meadow vegetation.			
21	Conducting a geobotanical description of the phytocenosis of the floodplain, convolvulus and lowland meadow.			
22	Characterization of the influence of environmental conditions on the			

	morphostructure of the species composition of meadow vegetation.			
23	Determination of species composition and environmental conditions for the growth of aquatic - coastal vegetation.			
24	Characterization of the influence of environmental conditions on the morphostructure of the species composition of wetland vegetation.			
	The amount of points for mastering practical skills			
	Final control			

The list of issues submitted to the final control (differentiation standings) for educational practice in pharmaceutical botany

1. Define the concepts of plant ecology and geobotany.
2. What are the main groups of environmental environmental factors.
3. Describe the effect of abiogenic factors on plants.
4. What are the main ecological groups of plants that are distinguished with respect to the conditions of humidification of the environment and describe the features of the morphological and anatomical structure of their organs.
5. Describe the features of the influence of the temperature factor on the growth and development of plants.
6. What are the groups of plants in relation to the intensity of illumination.
7. Describe the effect of chemical composition and air movement on plant life.
8. Describe the effect of individual factors on plant development.
9. What are the main ecological groups of plants, allocated depending on the chemical composition of the soil.
10. Describe the influence of orographic factors on the development of plants.
11. Give examples of plant parasites, parasites, epiphytes.
12. Explain the phenomenon of symbiosis in the plant world.
13. Describe the effects of positive and negative anthropogenic effects on vegetation.
14. Give a definition of the concepts of "introduction" and "acclimatization" of plants.
15. Formulate the concept of "range". What are the types of habitats and the factors influencing their formation.
16. Describe the phenomenon of endemism and cosmopolitanism.
17. Formulate the concept of "flora". What floristic areas stand out on Earth?

18. Give the definition of "phytocenosis." Its formation, structure, signs of classification.
19. Describe the concept of "biocenosis", "biogeocenosis or ecosystem."
20. Formulate the concepts: forest, steppe, meadows, swamp. Cultural phytocenoses are known to you.
21. What is an example of a multi-tiered phytocenosis?
22. List the types of medicinal plants of coniferous, deciduous and mixed forests.
23. What is a stand and how to determine it. Is the species called dominant?
24. Formulate the concept of "projective cover." How is it determined.
25. What is physiognomy phytocenosis and how to determine it.
26. What are the phenological phases of development of herbaceous and woody plants.
27. Formulate the concept of "association", "formation". Give examples.
28. Give an interpretation of the concept of "vegetation", "biome".
29. Indicate the types of vegetation of the Earth.
30. What are the medicinal water and marsh plants.
31. Give examples of medicinal, field, and roadside weeds. Identify among them poisonous weeds and local quarantine weeds.
32. What are the cultivated plants of the field: medicinal, cereal, leguminous, cereal, vegetable plants.
33. Describe the vegetation of inland and continental land and lowland meadows. Medicinal plants sprout on them.
34. Which plants of Ukraine are endangered and are listed in the Red Book.
35. Which plants of the South of Ukraine are endangered and are subject to protection.

Criteria for evaluating the final control in practice:

The maximum number of points that a student can score for ongoing educational activities in the study of the discipline is 120 points. The minimum number of points a student must gain for current educational activities is 72 points

When studying the discipline "Educational practice in pharmaceutical botany" the form of the final control in accordance with the curriculum is a differentiated classification. The final control is carried out in writing to assess the results of the practice. The form of the final control (differential test) is standardized, including control of theoretical and practical training.

The final control on the educational practice in pharmaceutical botany consists of the following steps:

Stage 1 (control of theoretical training) - a written response to test tasks of format A (test control). The student responds to the test suite. Each package contains 30 format

tests. The correct answer is estimated at 1 point. At this stage, computer control is possible.

Conducting a morphological and ecological description of 3 herbarium or living plant specimens. The complete response of 1 plant sample is estimated at 5 points.

The maximum number of points that a student can score during the control of his theoretical training is 45 points.

Stage 2 (control of practical training) - includes checking the possession of practical skills that students received during practice. Students defend the results of practical training based on the results of practical tasks: herbarium specimens of the Republic of Latvia, production of a morphological collection of vegetative and generative organs. In this case, points are set for each of the tasks, the quality and completeness of the tasks are evaluated.

Criteria for assessing practical skills in the preparation of a differentiated test for educational practice and pharmaceutical botany

№	Task	Points
1.	Production and design of the herbarium of the plants (10 samples)	20
2.	Production of a morphological collection of vegetative and generative organs in the form of a herbarium - 5 sheets; in the form of canned or dry raw materials - 300 g, or in the form of herbal remedies. f	15
	Total	35

The maximum number of points that a student can score during the control of his practical training is 35 points.

The maximum number of points that a student can score when drawing up a differentiated classification in practice is 80 points.

The minimum number of points that a student can score when drawing up a differentiated classification in practice is 50 points.

The maximum number of points that a student can score in all types of control in educational practice in pharmaceutical botany is 200 points (120 points for current activities +80 points for differentiated classification).

The minimum number of points that a student can score when drawing up the final control for all types of activities is 122 points (72 points for current activities + 50 points for differentiated classification).

Points:		Differentiated classification (total points)	Traditional mark	Date	Signature of the head of practices from university
current	final control				
the activity (performance practical skills)	Test work standardization test writing control				

SUMMING UP PRACTICES

Summing up the results of field practice in pharmaceutical botany is carried out in the presence of reporting documents provided for by the program from practice: a diary, respectively, a formalized list of practical skills and tests. The final control in accordance with the requirements of the practice program, students pass on the last day of practice. Assessment for the practice is entered by the head of the university in the diary, student's gradebook and test scoreboard. The practice diary is kept at the department for 1 year. The results of the practice are heard at meetings of the Department of Pharmacognosy of ONMedU, the profile methodological commission from pharmaceutical disciplines, and the Academic Council of the Faculty of Pharmacy.

Head of practice from the department _____

Head of

Department

of

Pharmacognosy

ONMedU

LIST OF RECOMMENDED LITERATURE

Primary:

1. Botany. Field training practice: textbook. manual for students pharmacy. universities and fac. / V.P. Rudenko, A.G. Serbin, L.N. Gorodnyanskaya and others; under the general. ed. A.G. Serbin and V.P. Rudenko. - Kh .: Publishing House of the NFAAU: Golden Pages, 2001. - 338 p.

2. Serbin A. G. Pharmaceutical botany: textbook. / A. G. Serbin, L. M. Seraya, T. A. Slobodyanyuk; under the editorship of L.N.Seroy. - Vinnitsa: A NEW BOOK, 2015 .-- 420 p.
3. Tkachenko N. M. Botany: a textbook. / N. M. Tkachenko, A. G. Serbin. - X .: Osnova, 1997 .-- 432 p.
4. Medical botany = Botanique medicale = Medical botany: textbook. for university students / A. G. Serbin, L. M. Seraya, N. M. Tkachenko, T. A. Slobodyanyuk; under the general. ed. L. N. gray. - Kh .: Publishing House of the NFaU: Golden Pages, 2003. - 364 p.
5. Yakovlev G. P. Botany: a textbook for high schools / G. P. Yakovlev, V. A. Chelombitko; under the editorship of Corr. RAS, prof. R.V. Kamelina. - SPb. : SpetsLit, SPKhFA, 2001 .-- 680 p.
6. The determinant of higher plants of Ukraine / D. N. Dobrochaeva, M. I Kotov, Yu. N. Prokudin and others. - K .: Naukova. Opinion, 1987. - 548 p.
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