

B.Ed 2.5/4 Year

**MANUAL
RESEARCH PROJECT
SCIENCE EDUCATION**

Course Code 8675/8681



DEPARTMENT OF SCIENCE EDUCATION
FACULTY OF EDUCATION
ALLAMA IQBAL OPEN UNIVERSITY ISLAMABAD

MANUAL
RESEARCH PROJECT SCIENCE
EDUCATION

B.Ed 2.5/4.0 YEAR

Code No: 8675/8681



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FACULTY OF EDUCATION
ALLAMA IQBAL OPEN UNIVERSITY ISLAMABAD

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MANUAL
RESEARCH PROJECT SCIENCE EDUCATION
B.Ed 2.5/4.0 YEAR
Code No: 8675/8681



Name: -----

Roll Number: -----

Registration Number: -----

Region: -----

Semester: -----

Theme: -----

Sub-Theme: -----

Topic: -----

Department of Science Education
FACULTY OF EDUCATION
ALLAMA IQBAL OPEN UNIVERSITY ISLAMABAD

DECLARATION

(To be filled and signed by the student and retained by the controller of Examination)

I----- Daughter/Son of: -----

Roll Number: -----Registration No: -----

is student of B.Ed Program(2.5 year/4 Year) Specialization in Science

Education, do hereby declare that the research project entitled-----

Submitted by me in partial fulfillment of B.Ed 2.5 Year/4.0 year program is my original work and has not been submitted or published earlier. I solemnly declare that it shall not, in future, be submitted for obtaining any other degree from this or any other University or institution.

I also understand the plagiarism policy of AIOU and HEC and if any work is found to be plagiarized or copied from someone others work at any stage, even after award of the degree, the work may be cancelled and the degree confiscated.

Signature of the student

Date: -----

Name of the student

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1. **Need and Importance of this Course**

Educational research is a systematic attempt to get a better understanding of science educational process, with a view of improvement of its efficiency and standards. Basically educational research is application of scientific method which involves study of Science educational problems. Educational research has a great field. Philosophy of Science teaching, Educational Psychology, Pedagogy, Policy, Assessment, teaching strategies, classroom management and organization, development are some of the important areas of research in Science Education.

In present scenario the role of a science teacher as a researcher has been accredited.

Education is considered as science and as science. it has a distinct body of knowledge. Education is dependent on organized body of knowledge, so there is need to explore new dimensions of knowledge of science to improve the education. Acquiring of Scientific knowledge also need innovative ways of teaching and learning, assessment and other areas. Everyday new problems, issues and trends emerge with the passage of time. There is a time to resolve the issue and solve the problems of education through researches. Changing concept of education also require research. During the last two decades, great changes have taken place as a result of the rapid scientific and technological developments. Education has to play an important role so that we can accept the change in a smooth way. While rapid changes emergence of problems is evident. These problems can be solved through researches. This research project is a convenient way to solve the problems. . It will help the students understand how scientific method is used to solve educational problems.

2. **Course Description**

The purpose of research project Code (8675/8681) is to engage prospective teachers who are enrolled in B.Ed 2.5 & 4 year in the research process. Research project helps to understand a particular problem or phenomenon along with strengthening their comprehension of research process. They discover first-hand knowledge about

- (a) how the steps of the research process are interlinked,
- (b) develop an understanding and appreciation of how knowledge evolves, and
- (c) adds a contribution to the existing body of knowledge.

It is common perceptions of the people that the teacher education in Pakistan lacks practical work and research work and more focus is on theoretical knowledge. No doubt, theoretical knowledge should be linked with classroom practices to make the teacher education programs more effective. The role of teacher is becoming as a researcher and finds the solution of daily problems through research is becoming more enormous. The Higher Education Commission Pakistan suggested some radical changes in the teacher education programs. To

incorporate the suggestions of the HEC, Allama Iqbal Open University has decided to equip its prospective-teachers with skills based on practical work under the supervision of experienced and highly qualified teachers. Research Project is one of such offerings to the students which will provide them some basic skills for being an effective classroom teacher. It is designed to provide them with critical approach, scientific attitude and reflective thinking. In the previous semesters, the students were offered 'Educational Research & Statistics', and 'Teaching Practice'. The experiences from these courses will help the students to build their narrative and complete this research project. Keeping in view the importance of research in the professional life of teachers, universities of the developed countries have made research a part of teacher education programs. For setting higher standards of pre-service teacher education in Pakistan, Allama Iqbal Open University has also made it mandatory for B.Ed students to conduct a research and write a report.

We have already learnt that action research is a way of solving local educational problems by adopting scientific method. Action research provides prompt solutions which is valid and reliable. Basically action research is conducted to cater the problems related to classroom or institution level. Now days adolescents are mostly enrolled in secondary classes. The nature of problems is diverse at this stage. So, to be skillful to conduct the action research is important for becoming a more effective science teacher.

Keeping in view the importance of action research in the area of teaching and learning science subjects, AIOU as per advice of the HEC has made action research a part of teacher education programmes. This will help the prospective – teachers, how scientific method is used to solve the classroom, laboratory or institutional problems.

3. Purpose of the Research Project

Purpose of the research project is to engage prospective teachers in action research by following all steps of action research and making them able to develop action plan.

4. Course Learning Outcomes

Prospective science teachers will be able to:

- Identify the importance of action research.
- Identify educational problems related to teaching and learning within classroom, science laboratory or institution.
- Get data by using different tools; like observation/interview etc
- Review the related literature to help how others solved the problem.

- Review the literature to find the gap for identified problem.
- Develop action/ scientific plan to solve the problem.
- Execute the intervention to get the data.
- Describe the variables involved in the research.
- Analyze the data obtained through research instrument.
- Draw conclusions based on the analysis of data.
- Write summary of the action plan.
- Develop research report according to APA style.
- Format the research report according to guidelines of APA manual.

5. **Course Structure**

This course is compulsory component of B.Ed 2.5 and B.Ed 4.0year Specialization in Science Education. This course comprises three credit hours. This course has complete practical nature based on field work. Following components will determine the structure of research project code 8675 for B.ed 2.5 Year and 8681 for B.Ed 4.0Year.

- Three credit hour course.
- Three days compulsory workshop.
- 80% attendance is compulsory to enter into research work.
- Approval of topic and sub-theme from given theme.
- Development of research proposal and discussion on it in three days workshop.
- Prospective-teachers (students) must bring their topics for research on the first day of the workshop.
- Nine meetings with supervisor. Meetings place and time will be determined by mutual coordination of students and supervisor.
- Regional offices will appoint coordinators/ supervisors for the workshop and coordinator will submit the list of supervisors to the respective regional offices.
- A supervisor will supervise only 25 Students at a time. But faculty members may supervise upto 50 students at a time.
- Research manual will be evaluated on the basis of quality of work and marks will be awarded according to the marking scheme/ marks mentioned in each section.
- Marks out of 100 will be awarded on the basis of set criteria.
- APA style must be strictly followed, zero percent plagiarism is allowed and 19% similarity is allowed. (Please sign declaration form before submission of the complete research project report)
- All research work must be written on the spaces provided in this manual.

- Research report will be written only in English language. Language other than English will not be accepted.
- Coordinator will collect all the manuals on the specified date and submit along with meetings attendance sheet to the respective regional directorate.
- Research projects will not be evaluated by the same supervisors. For each semester list of evaluators will be approved by the chairman Science Education and only approved evaluators will evaluate the research manuals.
- Resource persons or Coordinators may supervise the students. So coordinators/ resource person's qualification should be same as that for the supervisor.
- Workshop or project work may be monitored by the department of Science Education, Allama Iqbal Open University.
- The student who will attend the workshop and will not submit the research project manual within time will be considered as reappear case. S/he will have to attend the workshop and complete all the components again. For this student will have to contact the respective region him/herself. University will not inform him/her for completing the components. Remember that a student will have two consecutive chances for completion of research project. In case of reappear full fee will be due as per rates of the University.
- Regional directors are required to send all manuals along attendance sheets to the Directorate of Regional services or directly to chairman Science Education Department or Programme coordinator Science Education department.
- In case of any discrepancy regional directorate, coordinators, supervisors or students will contact Programme coordinator.
- All prospective teachers (students) will receive a theme and list of sub-themes along with this manual. Students are required to identify area of interest and develop a topic before start of the workshop.

Who can supervise, coordinate or teach?

The prospective-teachers will complete the research project under the guidance of a supervisor. Supervisor may be out of persons who are coordinating the workshop, or acting as resource person. It will be mandatory that the supervisor has at least Master degree in any Science Subject of Physics, Chemistry, Biology, General Science, computer Science and Mathematics along with M.Ed /MS/M.Phil degree in Science Education. Supervisor must have thesis in professional degree. In case of non-availability of supervisor with required

qualification the regional director/coordinator will contact with chairman Science Education department for special approval.

6. Teaching –Learning Methodology

The research project is different to development of lesson plan and teaching according to lesson plan. This project is an activity based course. Focus will be on development of research skills. Mostly action research develops skill like identification of problem, posing questions, gathering data, interpretation of data, reflecting on the data interpretation and decision making for suggesting the solution of the problem. Teaching –learning methodology includes; workshop, field work, meetings with supervisors and evaluation of the supervisors.

3-days workshop

- A 3-days workshop will be held to share the concept and procedures of action research with the students. As per purpose of this course one coordinator and two resource persons having required qualification should supervise the students.
- Three days workshop is compulsory component of the course. The students who will fail to attend the workshop will be considered disqualified to conduct the research in field.
- There will be five sessions for each day.
- The class size will not exceed 75.
- One coordinator and two resource persons will be involved in workshop.
- Students will work with these persons to decide the topic and plan for their research project.

Selection of the Topic

Department of Science Education with the recommendation of Dean Faculty of Education will provide a theme and a set of sub-themes. Theme and set of sub-themes will be submitted along with the topics before the start of the workshop to the Director Regional Services. DRS will disseminate topics for workshop and list of theme and sub-themes to all respective regional centers and concerned regional directors will be responsible to share the same to all coordinators and supervisors before the start of the workshop. This practice will be followed every semester as for each semester new theme and sub-themes will be provided by the dean Faculty of Education.

Provision of themes and sub-themes before start of the workshop will be beneficial to the supervisors for better understanding and allocation of topics to the students. These themes will be from all science education areas; teaching methods, AV aids, Classroom management, Assessment, Science process skills,

Higher order thinking skills, soft skills, curriculum, Laboratory skills, problems of science learning, Nature of science, Pneumonic in science education etc.

Three Days workshop Schedule and topics

Day	Sessions	Activity/Session	Timing
1	I	Inauguration of the workshop, Pattern and purpose of the workshop/ discussion on the topics which students have already brought for working on.	2.0-3.0
	II	Introduction of the action research , steps of action research	3.0-4.0
	III	Discussion on themes and sub-themes	4.0-5.0
	IV	Identification of the problem for action research	5.0-6.0
	V	Sources of locating related Literature, citing it and using APA manual.	6.0-7.0
2	I	Background and rationale of the study/ through activity how to write it?	2.0-3.0
	II	Description of variables and Operationalizing the terms.	3.0-4.0
	III	How to write Objectives/purpose of the study/ writing the questions	4.0-5.0
	IV	Population and Sample selection techniques	5.0-6.0
	V	procedure of intervention and data collection tools and techniques.	6.0-7.0
3	I	Introduction on writing summary, results, discussions and recommendations/action plan.	2.0-3.0
	II	Presentations of the students/Corrections by resource person/ supervisors	3.0-4.0
	III	Presentations of the students/Corrections by resource person/ supervisors and finalizing topics	4.0-5.0
	IV	Presentations of the students/Corrections by resource person/ supervisors and finalizing topics	5.0-6.0
	V	Presentations of the students/Corrections by resource person/ supervisors and finalizing topics.	6.0-7.0

7. **Prospective –Teachers (Students) may ask questions to coordinator/supervisor.**

- How to identify research problem and state research problem?
- What sort of research ethics should be observed?
- Can we write research report in any other language?
- How much time is required to submit the research project report?

- What is difference between action research and experimental research?
- Why action research is important to conduct?
- How to select the population and sample for research?
- How to cite and give reference of the text?
- How to relate classroom experience with research theme?
- What is rationale of the study?
- How to do review of literature?
- How to write objectives and research questions for the study?
- What is data and data tools?
- What are requirements for development and use of data instrument/tool?
- How to write findings and conclusions?
- What is self reflection and how to write reflections on findings of the research?

8. **Evaluation of the Research Project Report**

Research Project is a practical course. Prospective-Teachers (Students) will be required to conduct action research under the guidance of a supervisor. There are no assignments for this course, only non-credit questionnaire/ theme, sub-themes will be sent to student along with this manual. All students will study about theme and sub-themes and will find area of study and bring the topic to the workshop for final approval by the supervisor. At completion of the project, the manual will be submitted to the concerned regional office (through coordinator) of Allama Iqbal Open University. Prospective-Teachers (Students) will essentially sign the declaration form and project submission approval form. Without signature of the students and supervisor, the manual will not be acceptable.

The concerned regional office will ensure that the said student have 80% attendance. If a student has less than 80% attendance then manual should not be allowed to submit. Late submissions must not be accepted at all. All regions will prepare list of awards for students and submit to the department of Science Education Faculty of Education, AIOU. Final date of submission will be decided and communicated by the DRS to the regional offices.

The project manual will be evaluated against total number of 100.the distribution of marks is provided against each part. Accuracy, relevance, quality and language will be basis of scoring the responses.

TOPIC APPROVAL FORM

(Note: This form must be filled and signed on the last day of the three days workshop)

Name of Student:

Roll Number:

Registration Number:

Programme:

Supervisor's Name :

Theme:

Sub-theme:

Topic of research Project:

.....

.....

.....

.....

Workshop Coordinator Signature:

(Name)

Resource Person-I Signature:

(Name)

Resource Person-II Signature:

(Name)

Date of Approval of Topic:

Research Project Submission Approval form

(This form must be filled by the Prospective-Teacher (student); and signed by the supervisor and respective regional director)

This research project entitled -----

submitted by (student name) -----

----- Roll No. ----- Registration No. -----

-----Program B.Ed. (2.5 year/4.0 Year)

_____ was conducted under my supervision. I have read it and found it to be satisfactory regarding its originality, content, language, relevancy, consistency, citation and reference list. It is ready for submission for evaluation to Allama Iqbal Open University as a partial fulfillment of B.Ed (2.5year/4.0 Year) Specialization in science Education Program.

_____ (Signature of the Supervisor)

Date: _____

(Day-Month-Year)

(Name of the Supervisor)

It is certified that the student has completed at least 80% attendance and all the required components of the workshop.

_____ (Signature of the Regional Director)

A series of 20 horizontal dashed lines for writing.

Theme: -----

Sub-Theme: -----

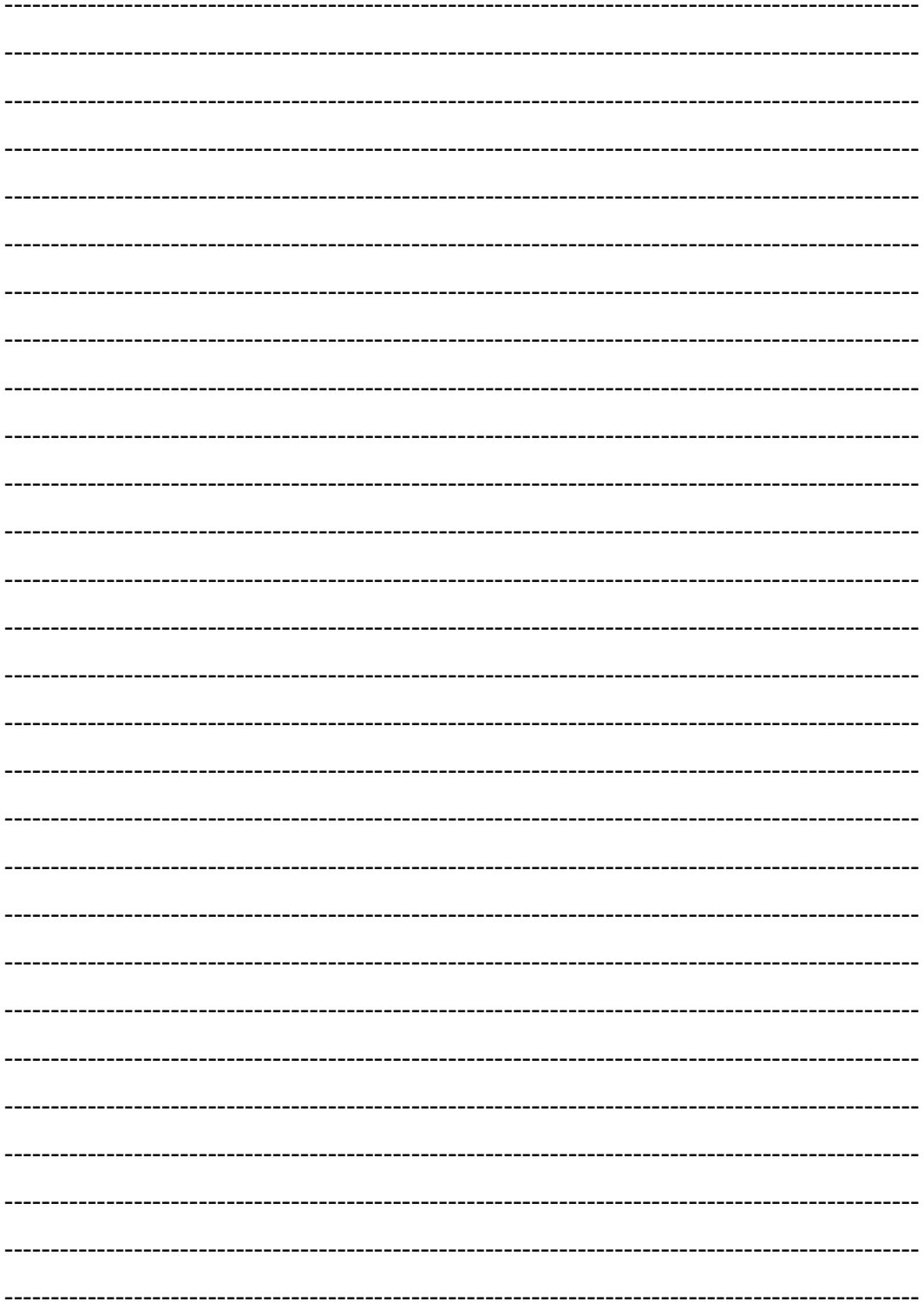
----- Topic: -----

A series of horizontal dashed lines for writing, with a solid line near the bottom.

A series of 25 horizontal dashed lines spanning the width of the page, providing a template for handwriting practice.

Lined writing area consisting of 24 horizontal dashed lines.

A series of 30 horizontal dashed lines spanning the width of the page, intended for writing or drawing.



A series of horizontal dashed lines spanning the width of the page, intended for writing.

A series of 30 horizontal dashed lines spanning the width of the page, intended for writing.

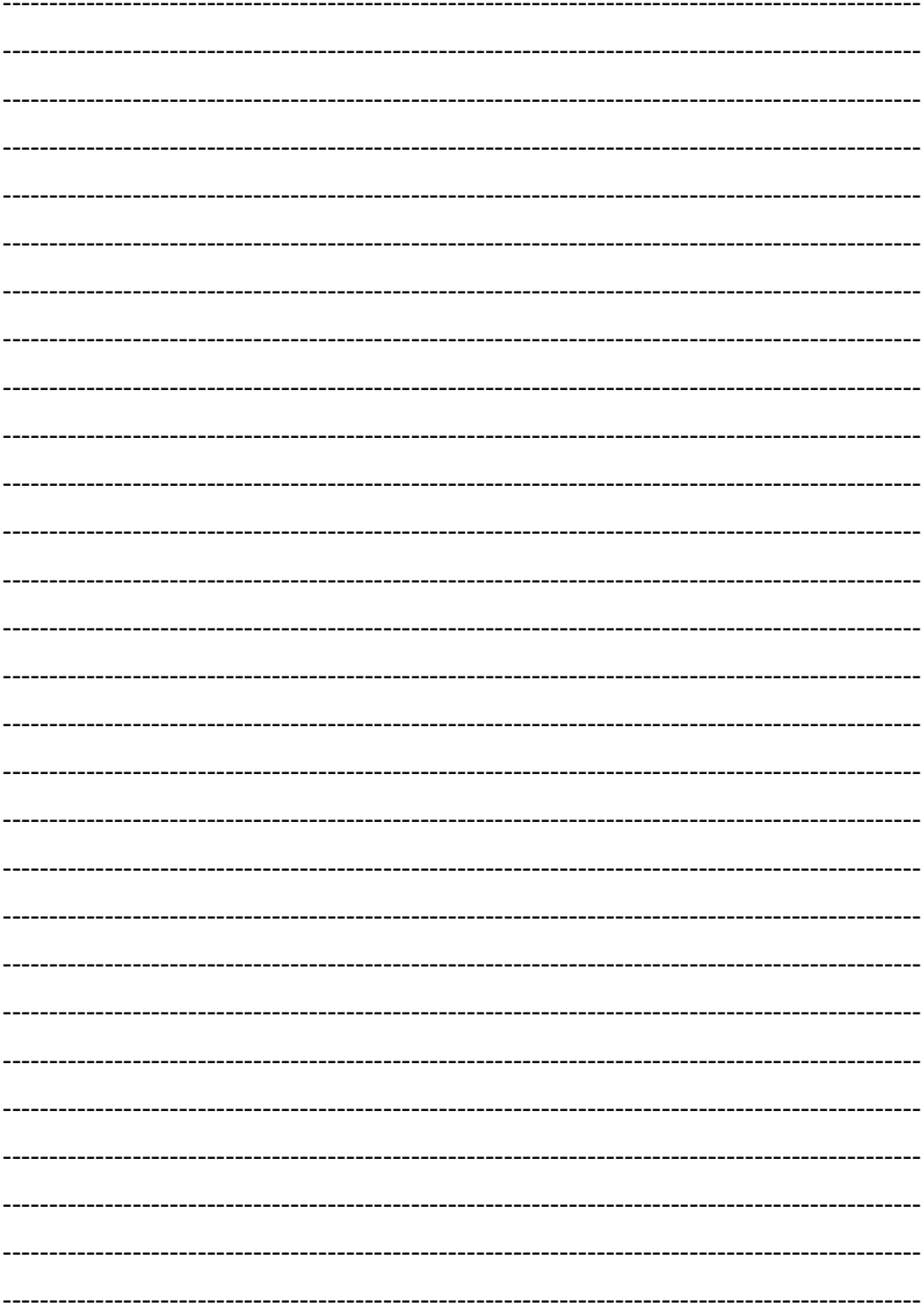
A series of 25 horizontal dashed lines spanning the width of the page, intended for writing or drawing.

A series of 26 horizontal dashed lines, evenly spaced, spanning the width of the page.

A series of 20 horizontal dashed lines, evenly spaced, spanning the width of the page, intended for writing or drawing.

A series of horizontal dashed lines spanning the width of the page, intended for writing or drawing.

A series of 28 horizontal dashed lines spanning the width of the page, providing a template for handwriting practice.



Handwriting practice lines consisting of 20 horizontal dashed lines spaced evenly down the page.

A series of 30 horizontal dashed lines spanning the width of the page, intended for writing.

Lined writing area consisting of multiple horizontal dashed lines.

A series of 20 horizontal dashed lines for writing.

A series of 25 horizontal dashed lines, evenly spaced, spanning the width of the page, intended for writing.

A series of 28 horizontal dashed lines, evenly spaced, spanning most of the width of the page. These lines are intended for writing.

A series of 25 horizontal dashed lines spanning the width of the page, providing a template for writing.

8675

ORIGINALITY REPORT

10%	6%	0%	8%
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