



**MANAGEMENT &  
TECHNIQUE OF NATURAL  
SCIENCE LABORATORY**

- According to the Ministry of Education (2006), Natural Science: relating how to find out about the systematic nature, so that the science is not only a mastery of knowledge in the form a collection of facts, concepts, or principles, but also a process of discovery
- Natural science education directed to inquiry and do something so can help learners to gain a deeper understanding about the nature around



- Teaching science in junior high schools aim for learners to have the some capabilities, one of them is conducting scientific inquiry to grow the ability of think, behave and act in scientific as well as communicate
- So we need labwork in teaching and learning process



# LABORATORY

- *laboratory* means a place to conduct laboratory experiments (investigation, and so everything that related with physics, chemistry, etc. (Poerwadarminta)
- While according Emha (2006) laboratory school is a place or institution where students study and conduct an experiment (investigation) and associated with physics and others.



# LABWORK

- Laboratory work is a unique kind of learning that should be an integral part of learning science.
- These lessons involving students in hands-on experience that allows them to participate in science as a way of thinking and investigation



# REASONS FOR THE IMPORTANCE OF LABWORK IN SCIENCE ACTIVITIES

1. Labwork generate motivation to learn science
2. Labwork develop basic skills to do experiments
3. Labwork course material support
4. Labwork to be a vehicle for learning the scientific approach



# APPROACH OF LABWORK

- Science process skill
- Deductive
- Inductive
- Technical skill
- Problem solving



## SCIENCE PROCESS SKILL

- Observation
- Measuring
- Collecting data
- Inferring
- Predicting
- communication
- Make hypothesis
- To range apparatus
- Experiment
- Analyze, etc





## DEDUCTIVE

- Theory, law, principal
- Result research
- Make paradigm
- hypothesis



## INDUCTIVE

- From experiment or observation → data  
observation or experiment → analyze → combine it  
→ discussion → combine (hypothesis &  
experiment result) → conclusion



## PREPARING STUDENTS IN LAB

- Prelaboratory discussion
- Giving Direction
- Postlaboratory discussion
- Student recording and reporting of data
- Management and discipline during lab
- Material and Supplies for the Lab
- Maintaining Science Equipment



# MANAGEMENT SCIENCE LABORATORY

Management: Systematic process of thinking, analytical, logical to do about the activities, measures, methods, power, and the funds are needed to achieve goal has been determined that an effective and efficient

In the laboratory management includes several

Aspects:

1. Planning
2. Administration
3. Ordering
4. Security, maintenance, and supervision



# THINGS TO CONSIDER IN THE MANAGEMENT LABORATORY

- The organizational structure of the lab
- Design lab
- Type of equipment / instruments
- Staflab: job descriptions should be clear
- training Staflab
- Safety

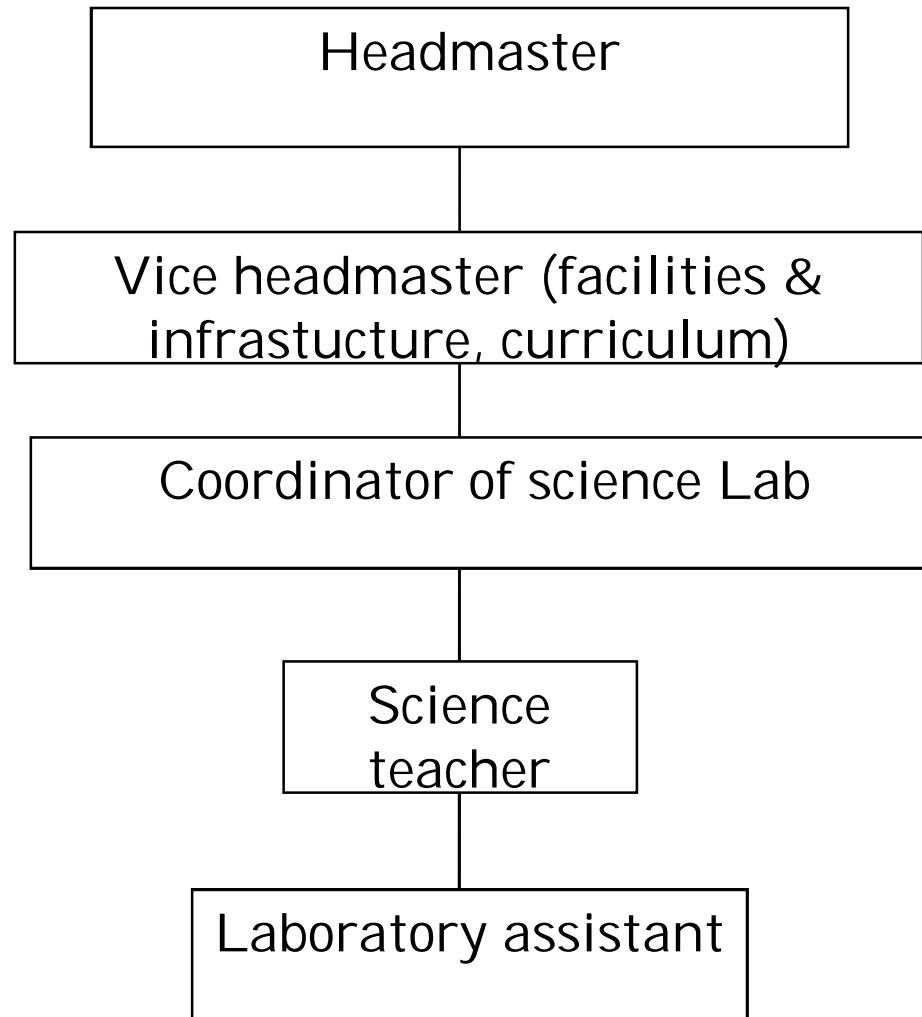


# LABORATORY ORGANIZATION

- the organizational structure
- description of the functions
- duties and responsibilities must be clear, adapted to the purpose lab
- based placement of personal qualifications and experience



# THE ORGANIZATIONAL STRUCTURE OF SCIENCE LAB



## HEADMASTER

- give task to assistant which it is responsible
- give guidance, motivation, monitoring and evaluation officer
- motivating science teachers for laboratory activities
- provide laboratory fund to operating activities





# VICE HEADMASTER OF FACILITIES AND INFRASTRUCTURE

help duty the headmaster in the field laboratory facilities and infrastructure



# VICE HEADMASTER OF CURRICULUM

help duty the headmaster of natural science learning in  
the laboratory



## COORDINATOR LABORATORY

- coordinate science teachers in the use of laboratory
- propose to headmaster of laboratory equipment and materials for practice



## LABORATORY ASSISTANT

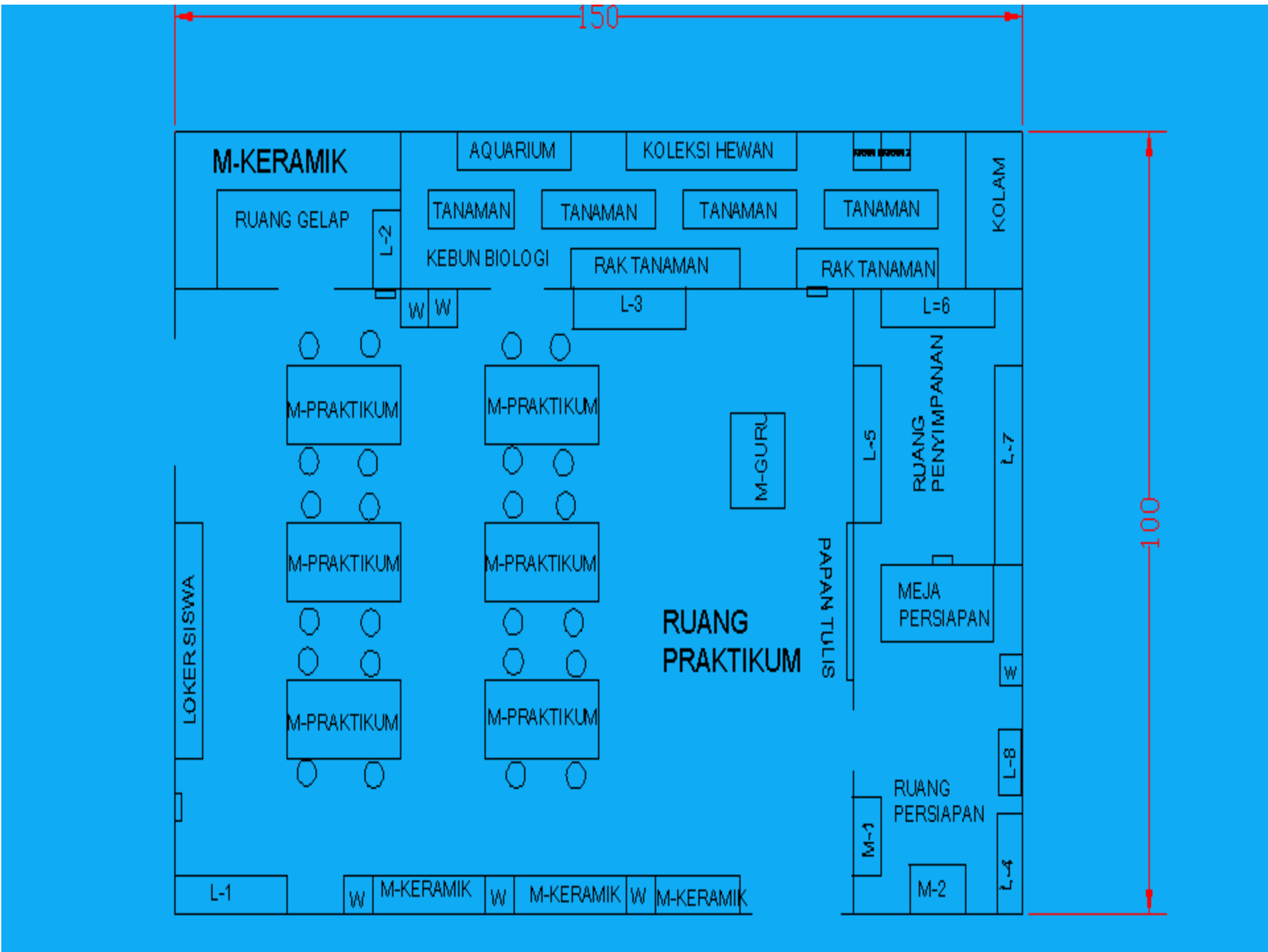
- Tasks as ADMINISTRATION LABORATORY
- Storing ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH TYPE orderly
- PREPARING AND storing BACK EQUIPMENT AND MATERIALS THAT HAVE BEEN USED
- MAINTAIN ALL EQUIPMENT / MATERIAL / FACILITY LABORATORY
- RESPONSIBLE FOR HYGIENE LABORATORY EQUIPMENT AND ROOMS WITH OTHER EQUIPMENT



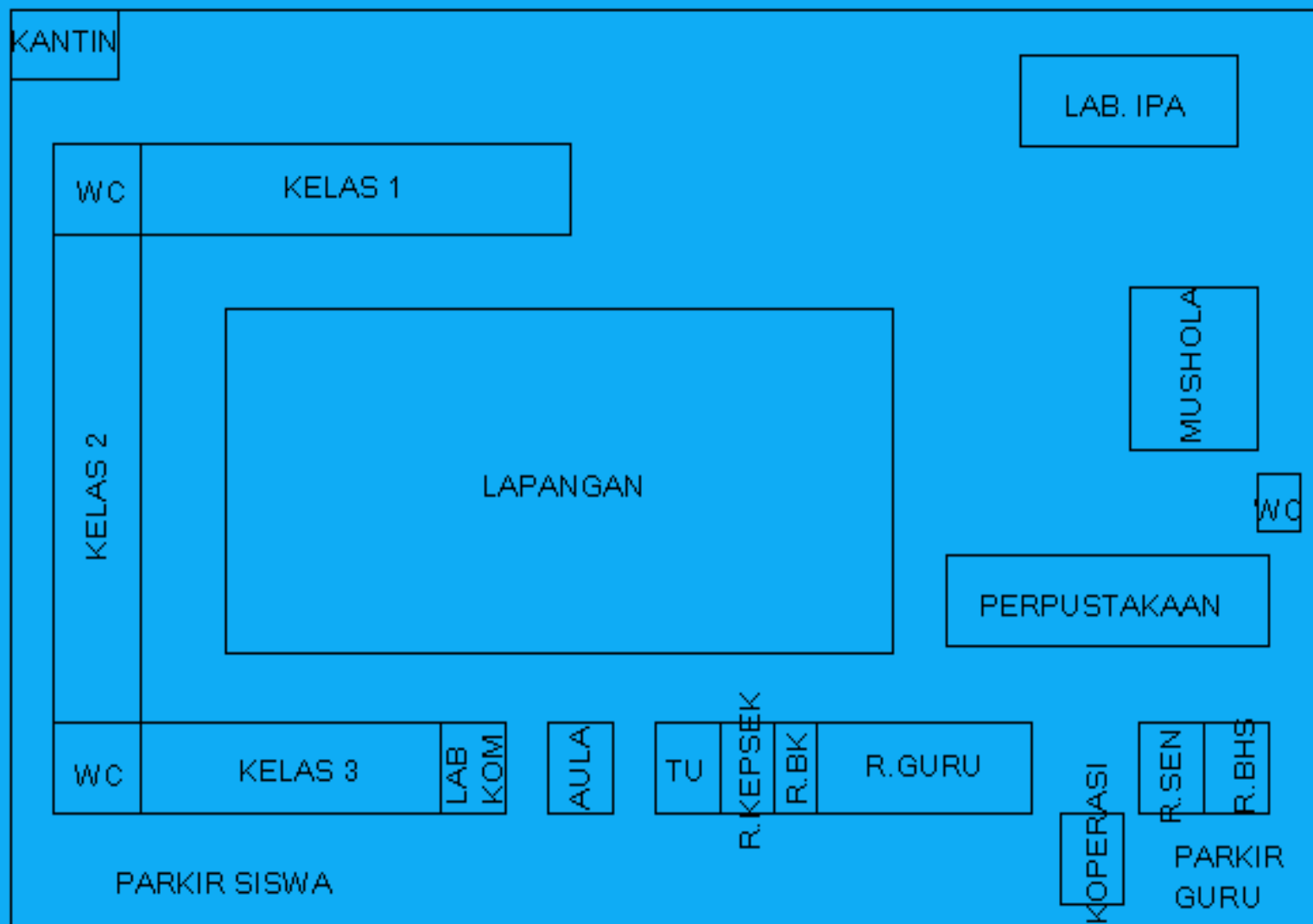
## DESIGN LAB

- dangerous area (red zone) exp: radiation lab
- safe area (green zone): to do labwork
- Areas that need to be alert (yellow zone):  
sterilization room, lasers, instrumentation





# DESAIN LETAK LAB. IPA SMP



# TASK

1. looking for the basic rules of laboratory design standards
2. Find information about organizational structure in the laboratory FMIPA, along with job descriptions and draw it!
3. Make design of science laboratory in junior high school!

