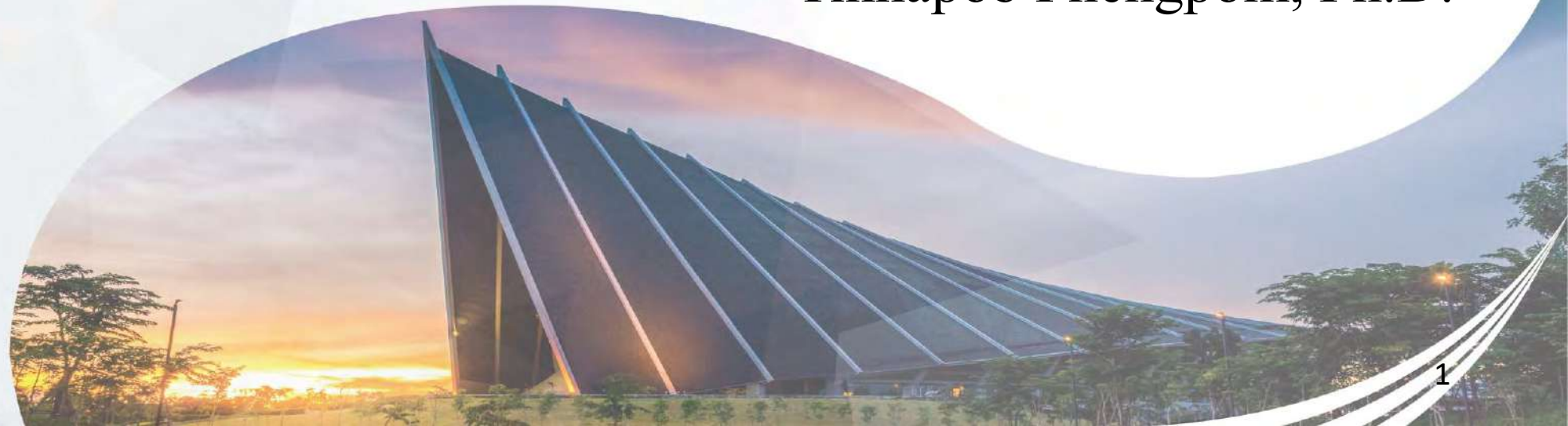




# Psychomotor Skills Teaching & Micro Mastery

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# Beat the Beads

**Winner:** Longest string of beads <sub>2</sub>



University  
of the Land

# Beat the Beads





# What is Psychomotor Domain?

The Psychomotor Domain is skill based and refers to the learning of physical skills.

Psychomotor skills include actions such as contacting, manipulating, or moving an object and controlling the body or parts of the body.

- The learner must use muscular action
- With or without equipment
- To reach the specific results





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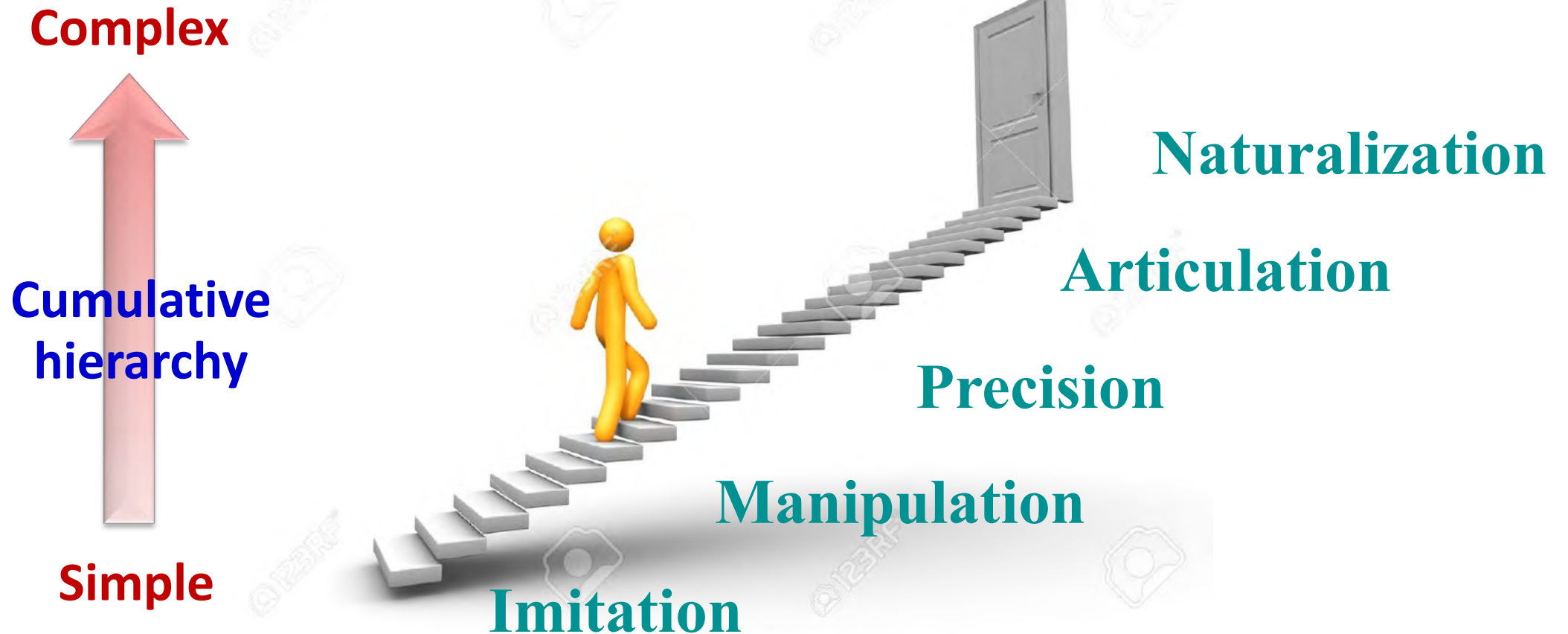
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**List important psychomotor skills that students need to learn in your field**



# Psychomotor Domain Taxonomy



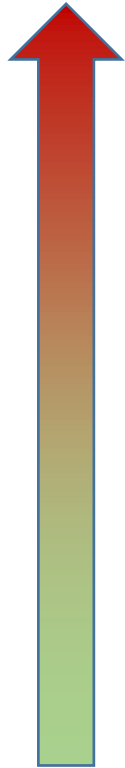
# Dave's psychomotor domain taxonomy (1)

Level	Category	Behaviors Description	Demonstration
1	<b>Imitation</b> (copy)	<u>Learning by watching and imitating actions</u>	<u>watch teacher or trainer and repeat action</u> , process or activity
2	<b>Manipulation</b> (follow instruction)	Actions performed through <u>memorization</u> or <u>following directions</u>	carry out task from <u>written</u> or <u>verbal instruction</u>
3	<b>Precision</b> (develop precision)	Performance becomes more <u>exact</u> , and action are <u>more precise</u>	<ul style="list-style-type: none"> <li>perform a task or activity <u>with expertise</u> / high quality <u>without assistance or instruction</u></li> <li>able to demonstrate an activity to other learners</li> </ul>

# Dave's psychomotor domain taxonomy (2)

Level	Category	Behaviors Description	Demonstration
4	<b>Articulation</b> (combine, integrate related skills)	<u>Several skills</u> can be performed together in a <u>harmonious way</u>	<u>relate and combine associated activities</u> to develop methods to meet varying, novel requirements
5	<b>Naturalization</b> (automate, become expert)	High level of performance achieved with actions becoming second <u>nature</u>	define aim, approach and strategy for use of activities to meet strategic need





**Naturalization**

**Articulation**

**Precision**

**Manipulation**

**Imitation**

Dave's taxonomy (1970)

**Origination**

**Adaptation**

**Complex Overt Response**

**Mechanism**

**Guided Response**

**Set**

**Perception**

Elizabeth Simpson's taxonomy (1972)



# How to improve your students in Psychomotor skills



# Psychomotor skill variables

**Motivation**

**Demonstrations**

**Physical Practice**

**Mental Practice**

**Feedback/**

**Knowledge of results**

# The teaching process

- 1) **Create interest** through the use of questioning and discussion of a puzzling problem or aspect of the skill to be developed
- 2) Provide a **demonstration** of the skill
- 3) Have **students practice** the skill
- 4) Ask students to **describe the appropriate steps** in performing the skills
- 5) Provide **alternating sessions of practice and evaluation**

# Peyton's four step approach (1998)

## 1. Demonstration

Instructor demonstrates the skill **at normal speed** and without additional comments.

## 2. Deconstruction

Instructor demonstrates the skill by **breaking it down into simple steps**, while describing each step.

## 3) Formulation

Instructor demonstrates the skills whilst being **'talked through' the steps by the learner**

## 4) Performance

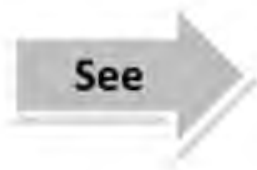
**Student demonstrates** the skill, while describing each step.

Walker M, Peyton JWR. Teaching in theatre. In: Peyton JWR, editor. Teaching and learning in medical practice. Rickmansworth: Manticore Europe Limited; 1998. p. 171–80.



Learning about procedure via reading, videos and online training

- Cognitive skills test



Demonstration by instructor

- Nonverbal demonstration of skill
- Demonstration of individual steps with verbal description

***Cognitive phase***



Formative assessment on simulator

- Deliberate practice



Summative assessment on simulator

- Mastery learning
- Competency-based assessment and feedback



Performance on human

- Direct supervision
- Performance-based assessment and feedback

***Psychomotor phase***



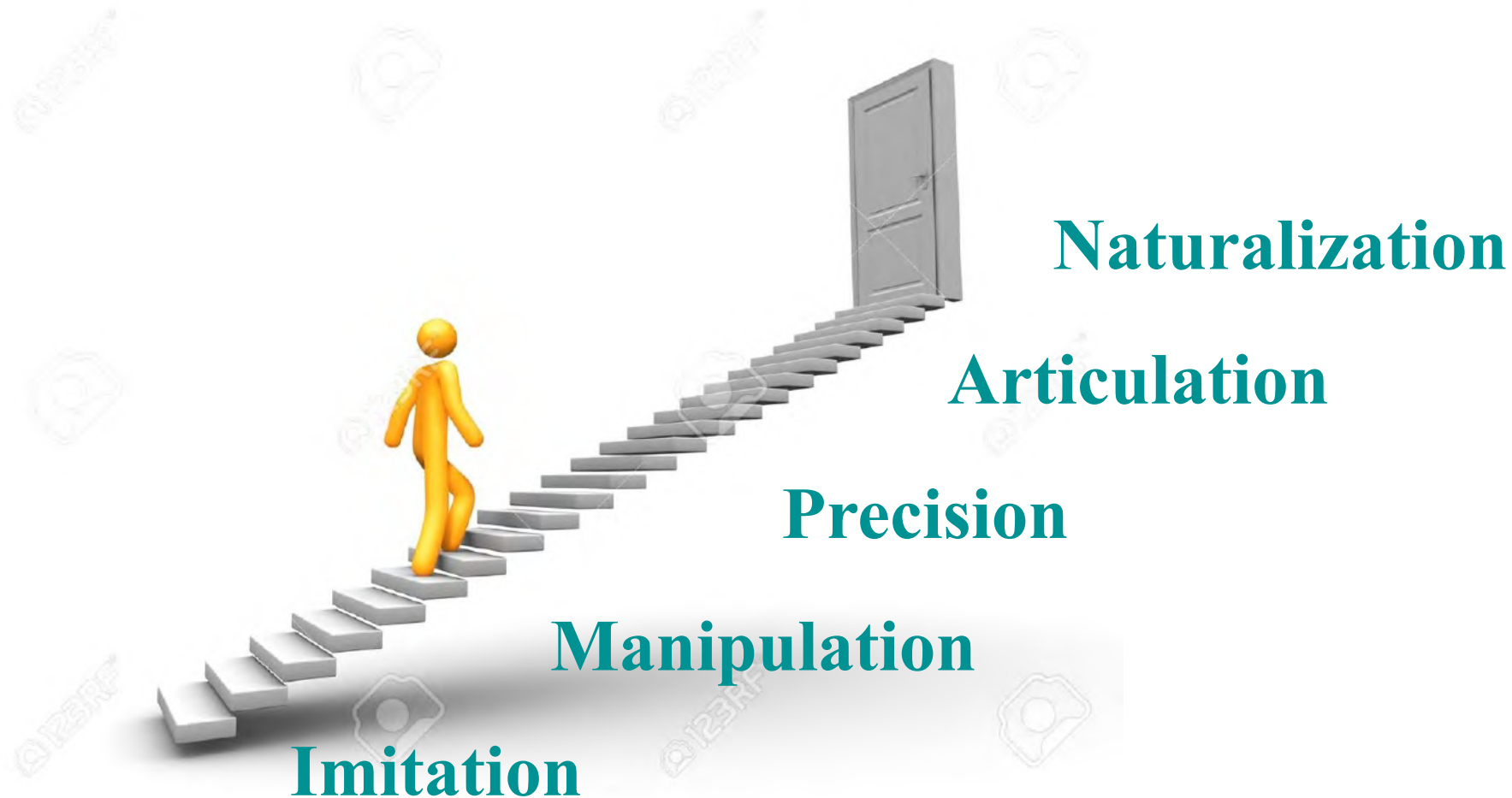
Maintenance of skill through clinical practice supplemented by simulation as needed

- Procedure logs
- Individual continuous quality improvement
- Maintenance of certification

## A proposed pedagogical framework for procedural skill training in medicine

Sawyer, T., White, M., Zaveri, P., et al. (2015). Learn, see, practice, prove, do, maintain: An evidence-based pedagogical framework for procedural skill training in medicine. *Acad Med*, 90(8), 1025-1033.

# Which level of psychomotor skill that we would like students to achieve?





# Examples for Psychomotor skills teaching



## ULTRASOUND-GUIDED PERICARDIOCENTESIS MODEL



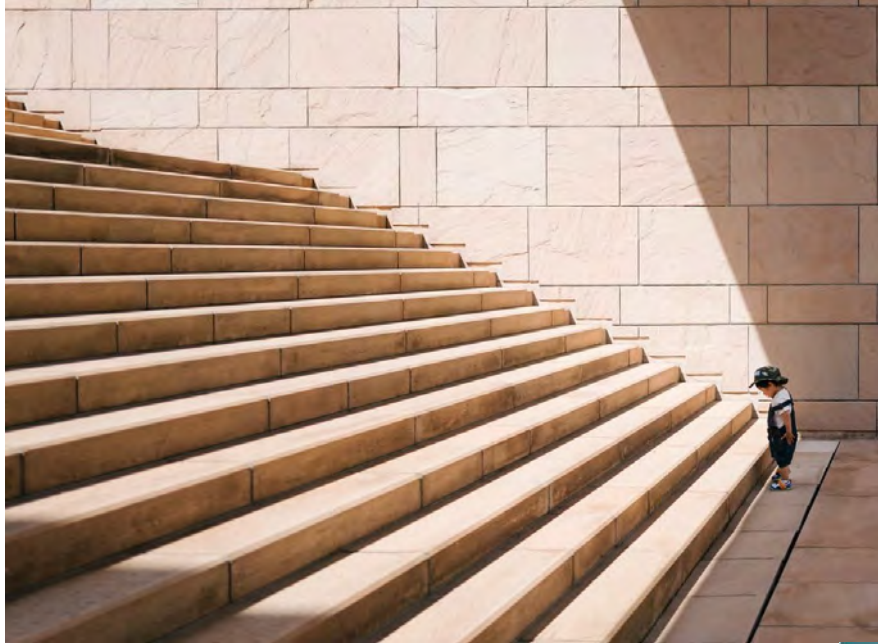
This model allows students to insert the needle under ultrasound guidance, puncture the “pericardial sac” and aspirate pericardial fluid.



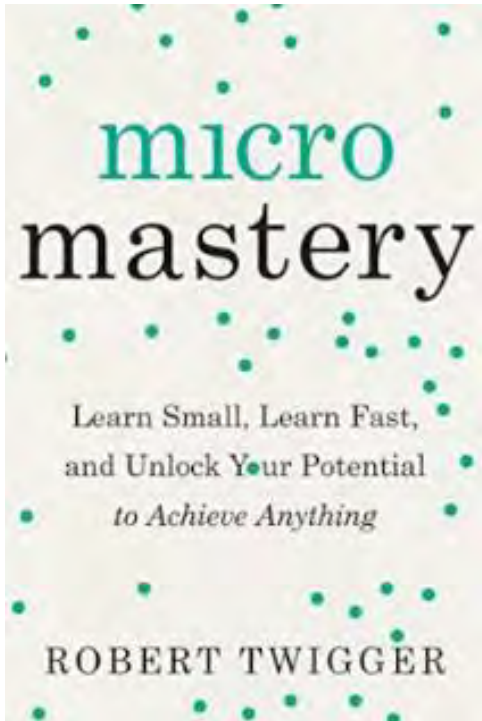


# Micro Mastery

**Micro Mastery :**  
“Learn Small,  
Learn Fast, and  
Unlock Your  
Potential to Achieve  
Anything”  
(Robert Twigger)



The micro-mastery encourages us to try to master small skills before attempting to learn everything.



**10,000 hours Rule :**  
“If we want to become experts  
in a subject, we must practice it  
for 10,000 hours, and that dream  
will come true.”  
(K. Anders Ericsson)



If we want to practice anything without a **plan or key concept**, we may achieve success slowly, and we may even fail or give up.

## **The entry trick** (an initial piece of information ) Quick way to get basic grip on the matter

Example: What is the entry trick that makes the omelet **fluffy** and **crispy**?

Trick I: *Use* a tall pot and *Pour* the beaten eggs through a sieve

Trick II: *Beat* the eggs with a little bit of milk or water

Trick III: .....



# These components were suggested by Robert Twigger.

## Repeatable

Being able to repeat and *get better* at doing it.

## Payoff

Success *incentives* that make people want to repeat them

## Experiment

Start at *small* and add *zest* to repeatability

## Feedback

Give people something to *connect* to others and earn feedback



<https://th.lovepik.com/>



<https://www.pngegg.com>

## Applying Micro Mastery to Develop Psychomotor Skills



<https://th.lovepik.com/>



<https://www.kroobannok.com/>

# Peyton's four step approach (1998) **Building a Micro Mastery**

## 1. Demonstration

## 2. Deconstruction

Instructor demonstrates the skill by **breaking it down into simple steps**, while describing each step.

## 3) Formulation

## 4) Performance



1. Break down the steps
2. prioritize steps
3. Practice each step
4. Combine the steps.

Walker M, Petyon JWR. Teaching in theatre. In: Peyton JWR, editor. Teaching and learning in medical practice. Rickmansworth: Manticore Europe Limited; 1998. p. 171–80.

# Applying Micro Mastery to Develop Psychomotor Skills

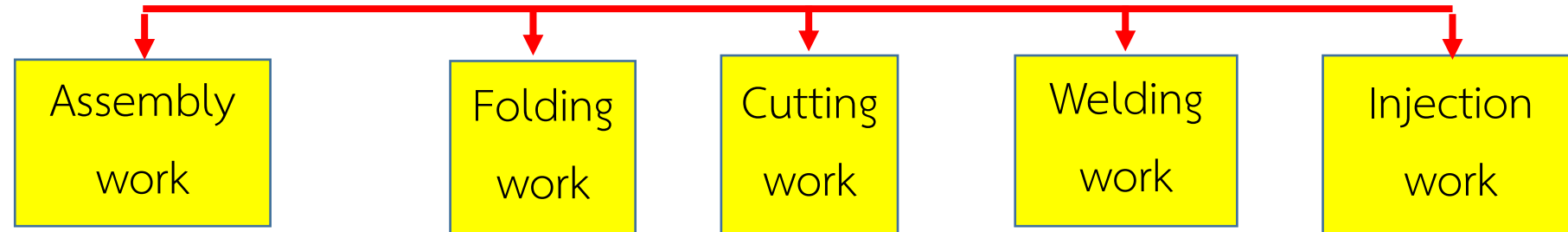


Seafood showcase

Chunking



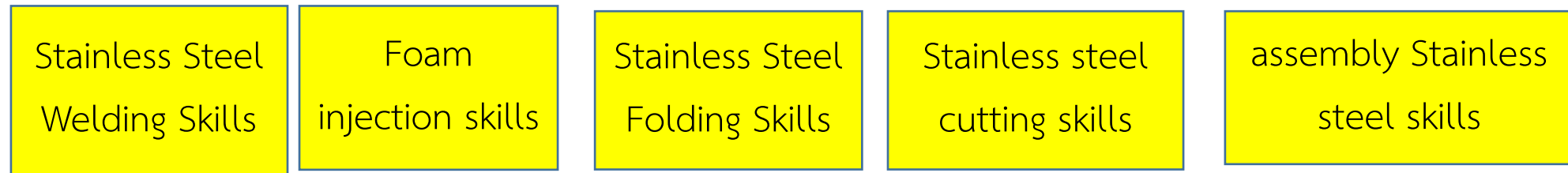
1. Break down the steps



2. prioritize steps

3. Practice each step

(sort by importance)



4. Combine the steps.

(according to the actual production flow)



Seafood showcase

Thank you