

PrimeTime

WN21 Capstone Final Presentation

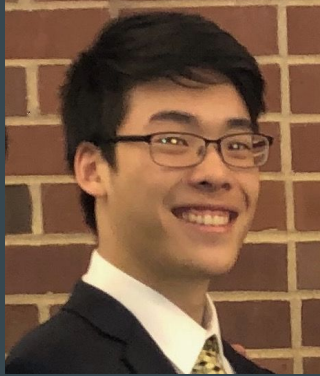
Engineering Honors

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Faculty Advisor: Professor Len Middleton

251 Chrysler Center
University of Michigan
College of Engineering

April 29, 2021





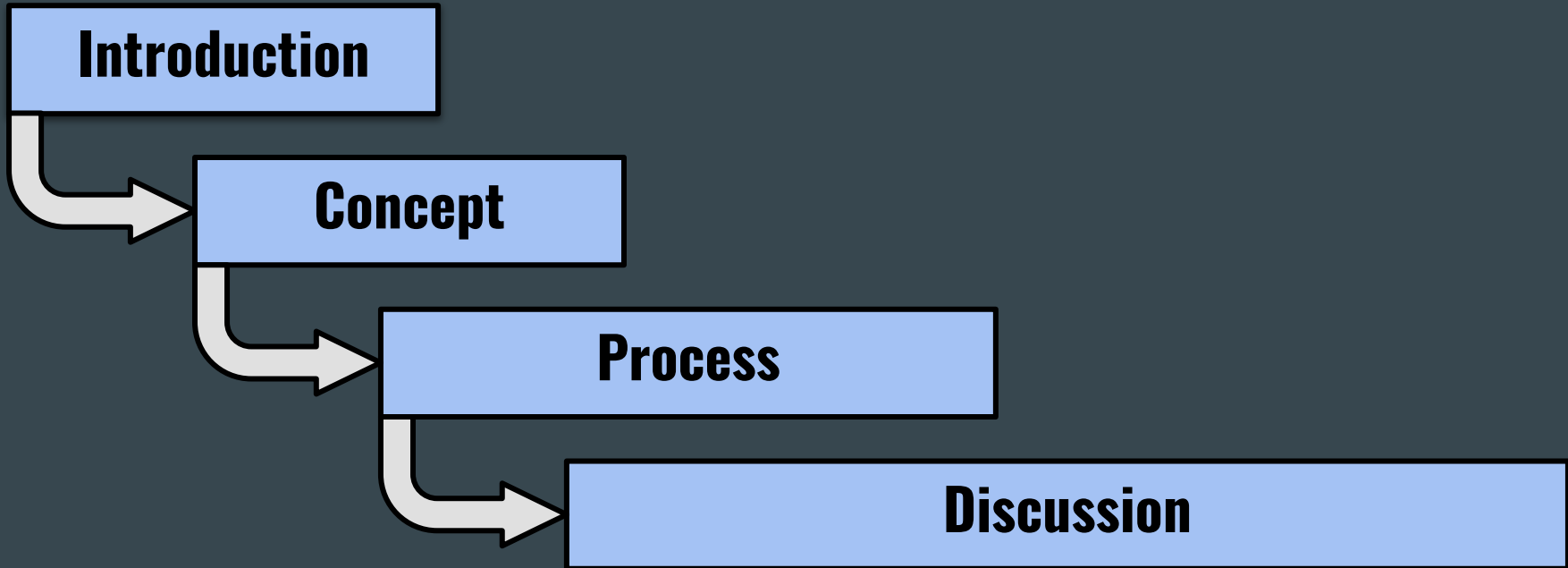
Jonathan Liu
B.S.E. Computer Science

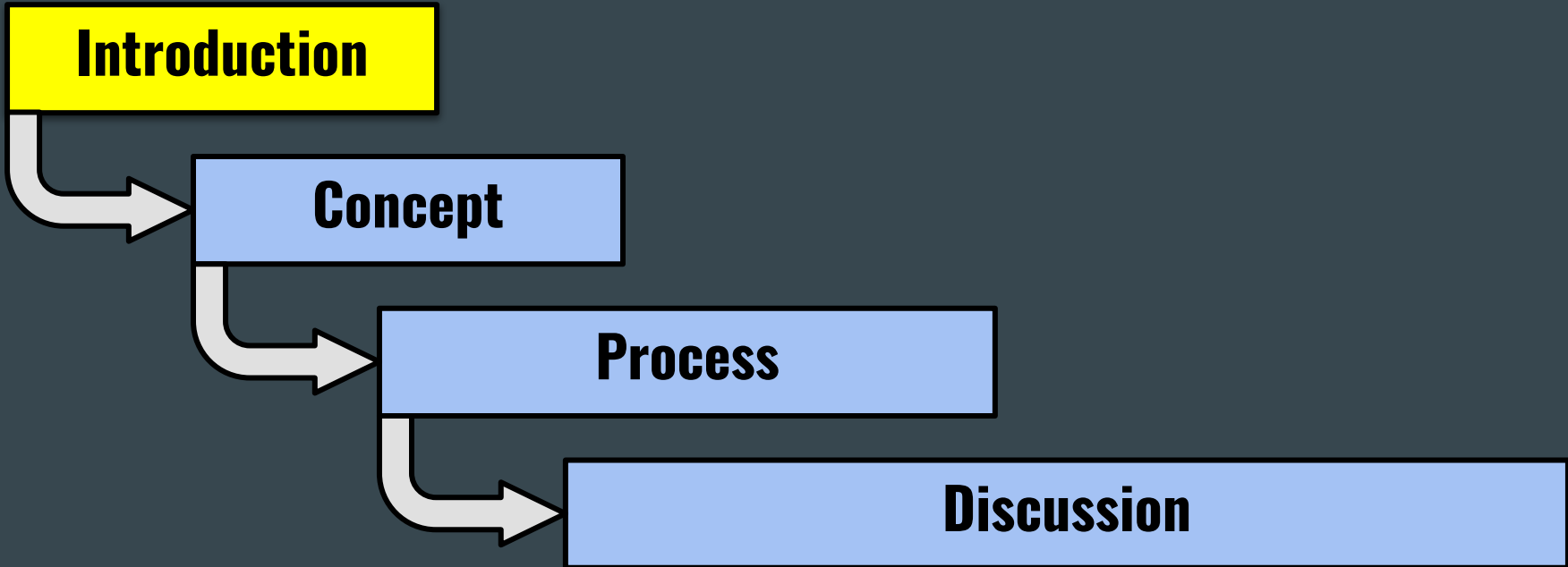


Professor Len Middleton
Lecturer of Strategy and
Entrepreneurship



Alan Gerdov
B.S.E. Electrical Engineering





March 12th, 2020



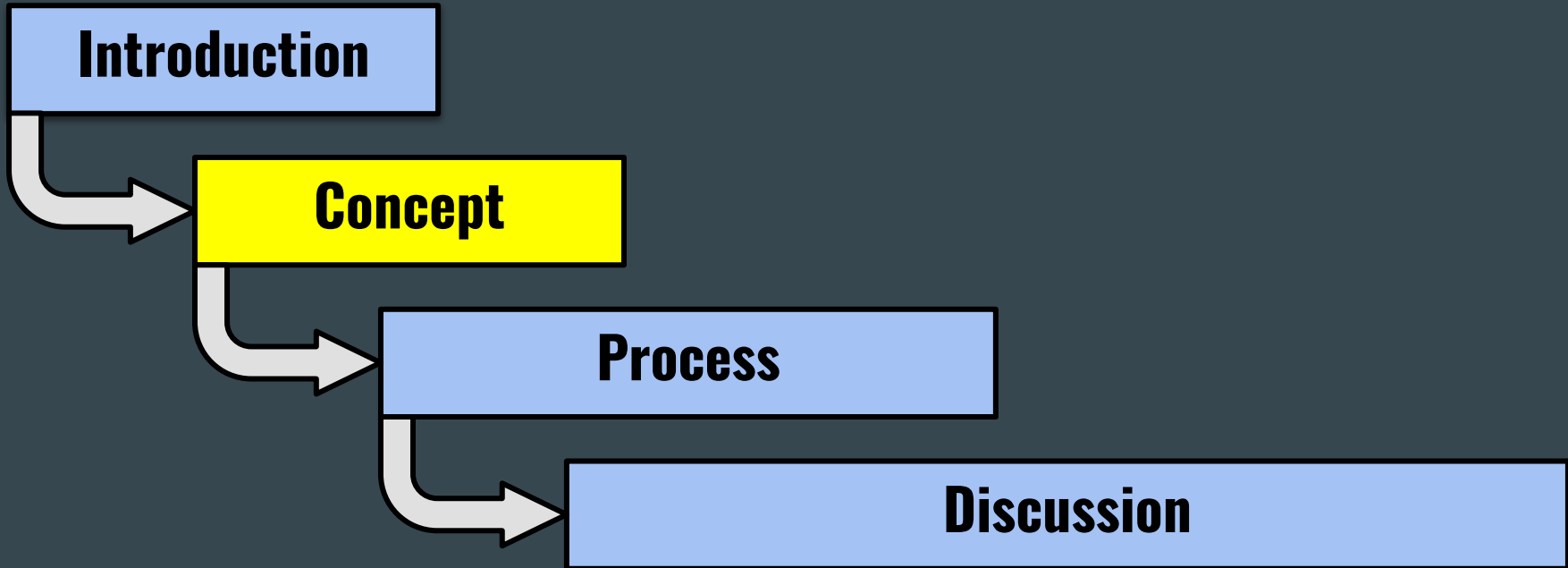
“This is why most Americans don’t exercise more.”

Top 10 reasons Americans more frequently

I don't have time	42%
I don't have the motivation	35%
I don't like exercising	25%
Work gets in the way	23%
I feel too old	23%
I don't see results	22%
Don't have equipment at home	21%
It's too expensive	20%
It's inconvenient	19%
Gym is too far away	18%

“Benefits of Physical Activity”

- Improving your brain health
- Battling anxiety and depression
- Helping sleep
- Reducing health risks
 - Cardiovascular disease
 - Type 2 Diabetes
 - Metabolic Syndrome
 - Several forms of cancer
- Strengthening bones and muscles
- Improving ability to do everyday activities



Interval Based Workouts

- Create a Workout
 - Number of Exercises
 - Exercise Selections
 - Exercise Time
 - Rest Time
 - Number of Cycles
- Visual and Audible Updates
 - “Half-way”,
 - Three second countdown,
 - “Next exercise is...”
- Editable Presets

TABATA WORKOUT

(high intensity interval training)

The diagram illustrates a Tabata workout structure. It consists of four circuits, each containing two exercises. Each exercise is performed for 20 seconds, followed by a 10-second rest period. The exercises are: High knees (Exercise 1), Triceps chop (Exercise 2), Slow climbers (Exercise 3), Lunge (Exercise 4), Leg raises (Exercise 5), Push-ups (Exercise 6), Flutter kicks (Exercise 7), and Plank (Exercise 8). The workout is divided into four minutes, with two exercises per minute.

Circuit	Exercise	Work Time	Rest Time
Circuit 1	High knees (Exercise 1)	20 sec	10 sec
	Triceps chop (Exercise 2)	20 sec	10 sec
Circuit 2	Slow climbers (Exercise 3)	20 sec	10 sec
	Lunge (Exercise 4)	20 sec	10 sec
Circuit 3	Leg raises (Exercise 5)	20 sec	10 sec
	Push-ups (Exercise 6)	20 sec	10 sec
Circuit 4	Flutter kicks (Exercise 7)	20 sec	10 sec
	Plank (Exercise 8)	20 sec	10 sec

Dynamic Exercise Catalog & Stopwatch and Timer

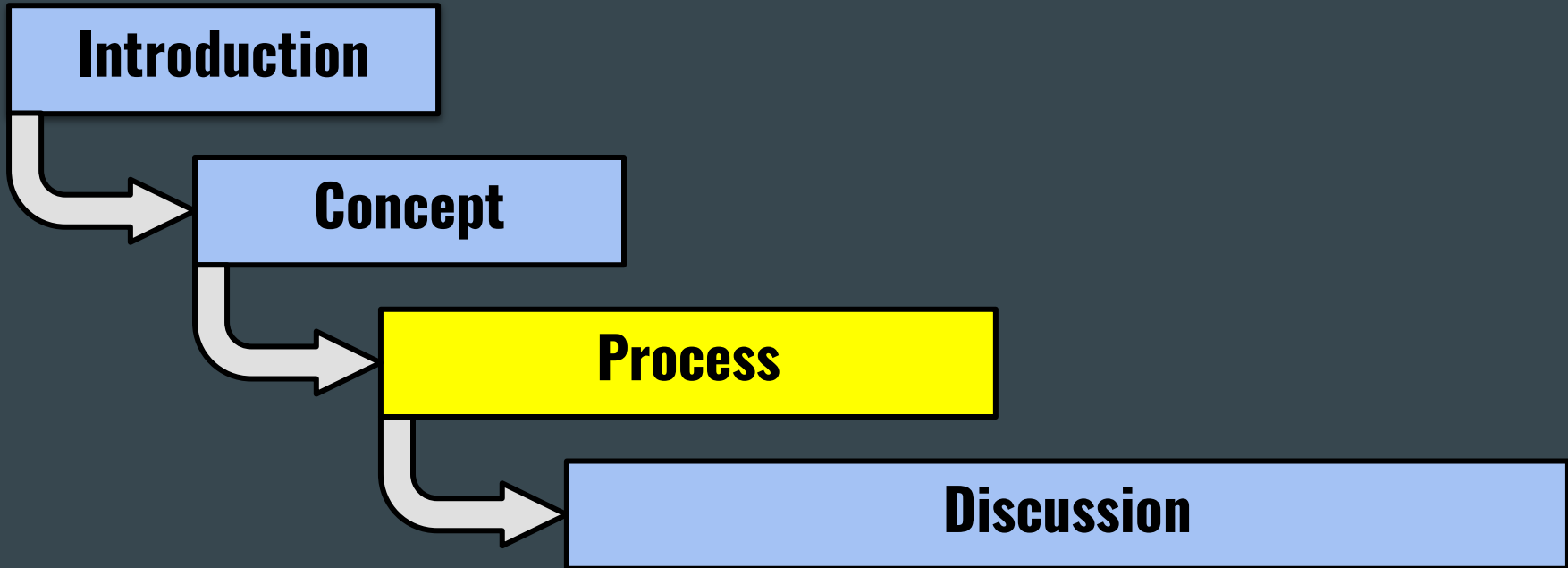
- Organized by target zone muscle groups
 - Arms
 - Shoulders
 - Chest
 - Back
 - Abs
 - Legs
 - Cardio
 - Favorites
- Name and description
- Dynamic 'Add Exercise' option



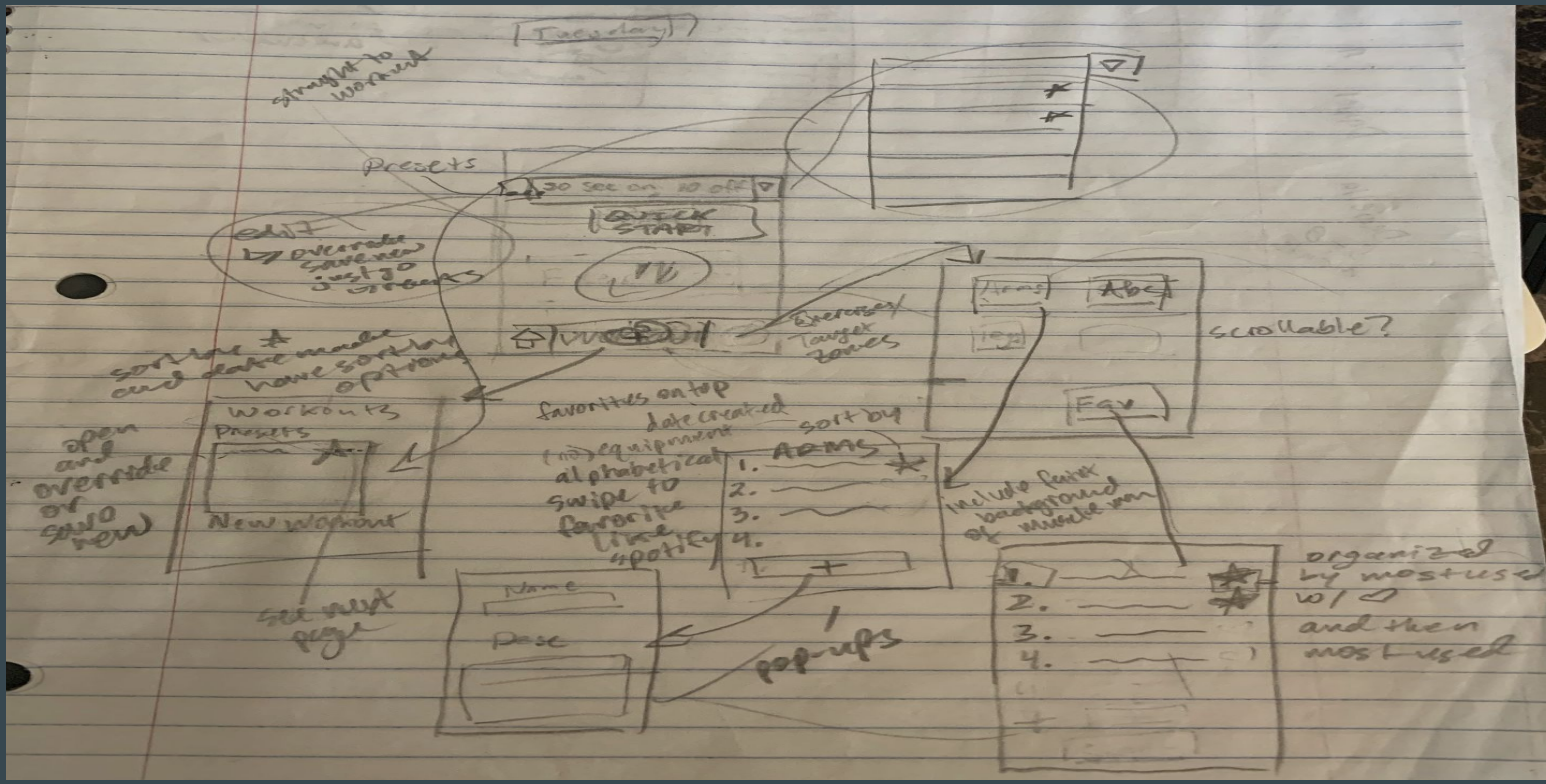
Example Workout

Full-body Tabata (20 seconds on, 10 seconds off) Workout
5x the following → 15 minutes:

- 1. *Jump Rope 20s, Rest 10s***
- 2. *Push-ups 20s, Rest 10s***
- 3. *Air Squats 20s, Rest 10s***
- 4. *Sit-ups 20s, Rest 10s***
- 5. *Bicep Curls 20s, Rest 10s***
- 6. *Jumping Jacks 20s, Rest 10s***

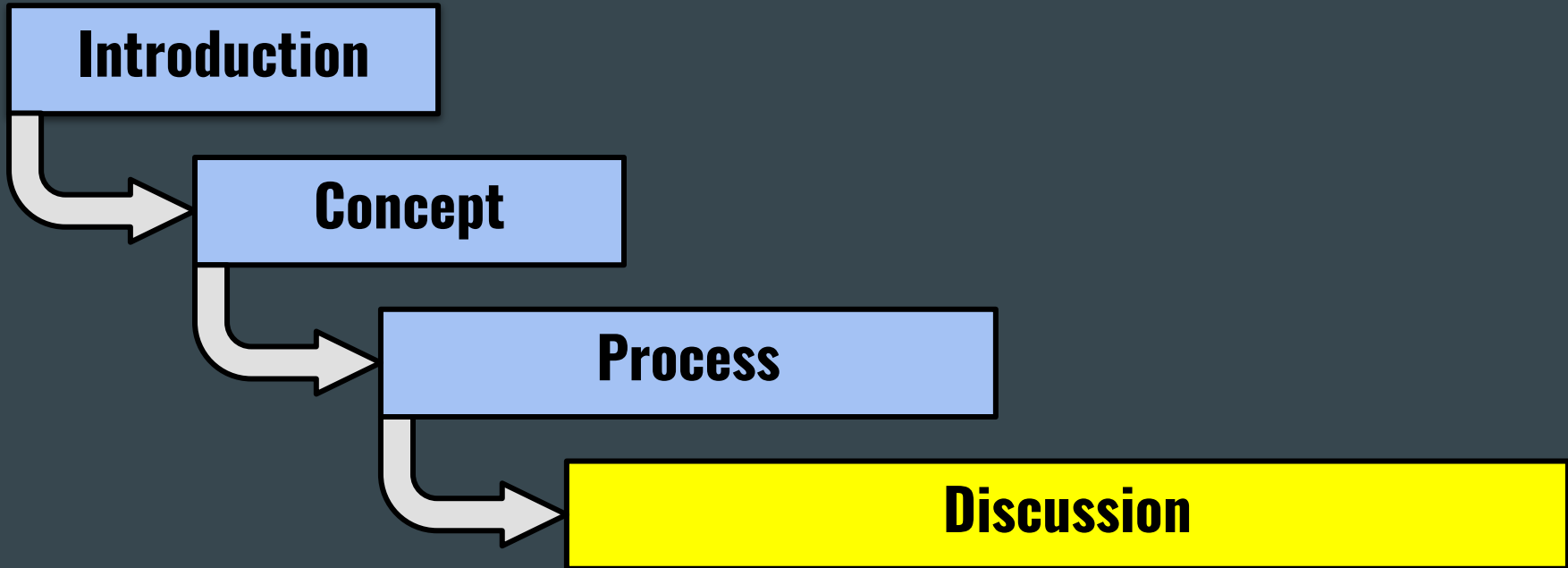


Ideas to Reality



Target Zone Exercise List Example

Arms	Shoulders	Chest
Pull-ups	Shoulder Press	Push-ups
Chin-ups	Handstand Push-ups	Bench Press
Push-ups	Front Weight Raise	Chest Fly
Hammer Curls	Reverse Fly	Dips
Dips	Lateral Weight Raise	Wide Arm Push-ups





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References

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