



# Discover Diving

World Underwater Federation



# Discover Diving



Discover Diving



World Underwater Federation

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# Basic equipment



# Discover Diving



## World Underwater Federation

### Basic equipment

Mask

Snorkel

Fins

Belt

Weight

Suit

Gloves

Boots/Socks



# Discover Diving



## World Underwater Federation

### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks

USE  
CHOICE  
MODELS  
MATERIALS  
DRESS  
MAINTENANCE



# Discover Diving



## World Underwater Federation

### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks





# Discover Diving



## World Underwater Federation

### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks





# Discover Diving



## World Underwater Federation

### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks





# Discover Diving



## World Underwater Federation

### Basic equipment

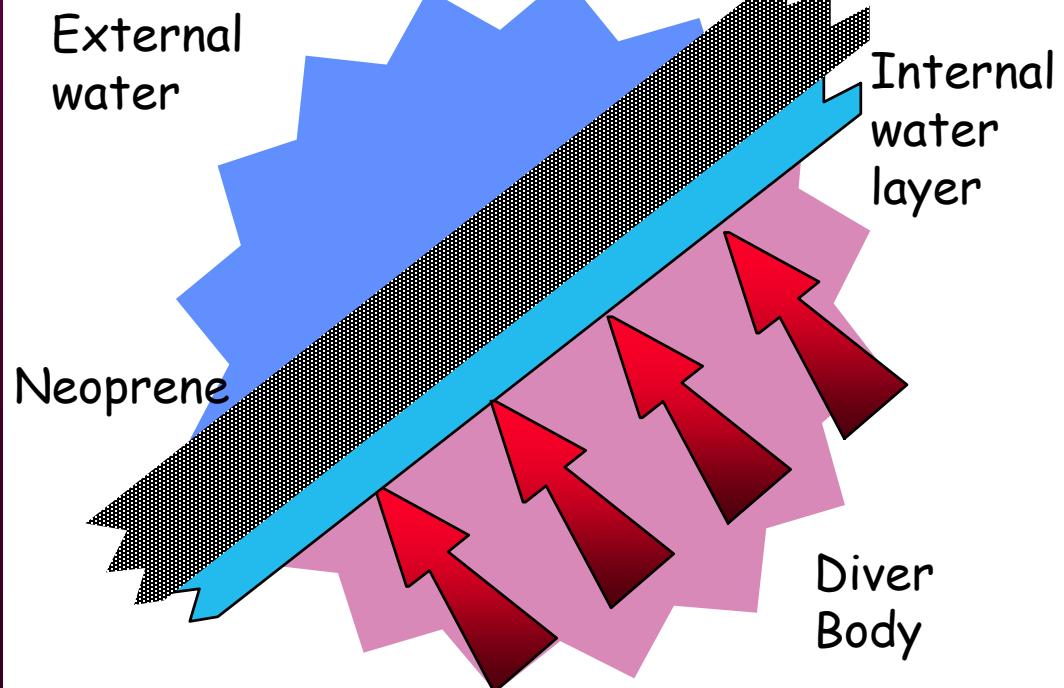
Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks



### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks

#### Wetsuit





# Discover Diving



## World Underwater Federation

### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks





Discover Diving



World Underwater Federation

# Accessories



# Discover Diving



## World Underwater Federation

### Accessories

Surface marker buoy

Knife

B.C.

Bag



# Discover Diving



## World Underwater Federation

### Accessories

Surface marker buoy

Knife

B.C.

Bag

USE

CHOICE

MODELS

PURPOSE



# Discover Diving



## World Underwater Federation

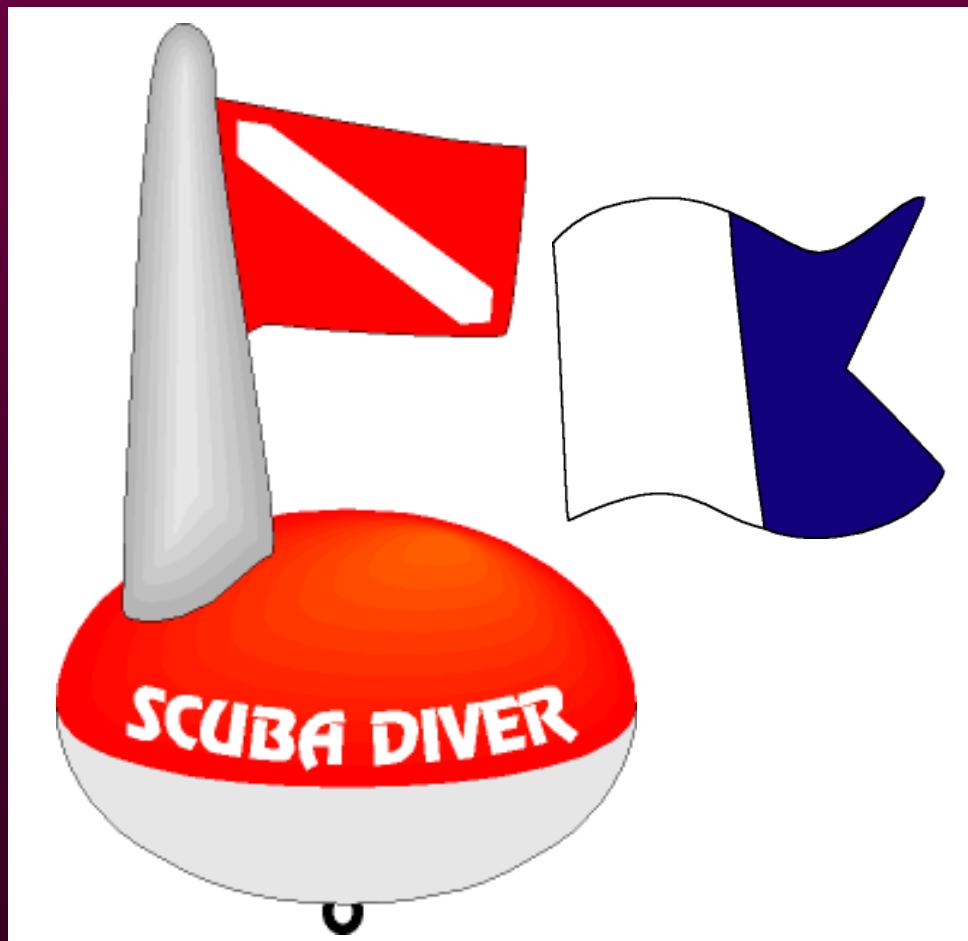
### Accessories

Surface marker buoy

Knife

B.C.

Bag





# Discover Diving



## World Underwater Federation

### Accessories

Surface marker buoy

Knife

B.C.

Bag





# Discover Diving



## World Underwater Federation

### Accessories

Surface marker buoy

Knife

B.C.

Bag





# Discover Diving



## World Underwater Federation

### Accessories

Surface marker buoy

Knife

B.C.

Bag





Discover Diving



World Underwater Federation

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# Dressing order



# Discover Diving



World Underwater Federation

## Dressing order

Suit

Boots/Socks

B.C.

Fins

Weight Belt  
Mask

Snorkel  
Gloves



Discover Diving



World Underwater Federation

# Buoyancy



# Discover Diving

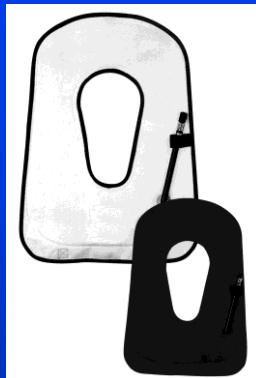


World Underwater Federation

## Buoyancy



Suit



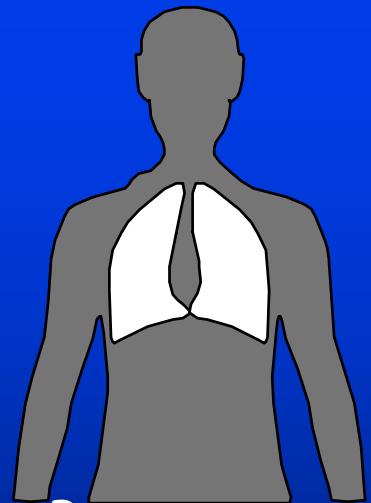
B.C.



Weight belt



Body frame



Pulmonary Capacity



Discover Diving



World Underwater Federation

# Equalisation

### Equalisation

Seni

Air ways

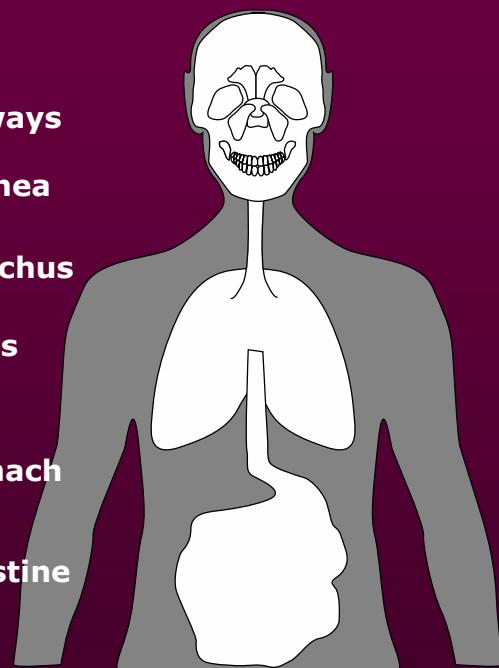
Trachea

Bronchus

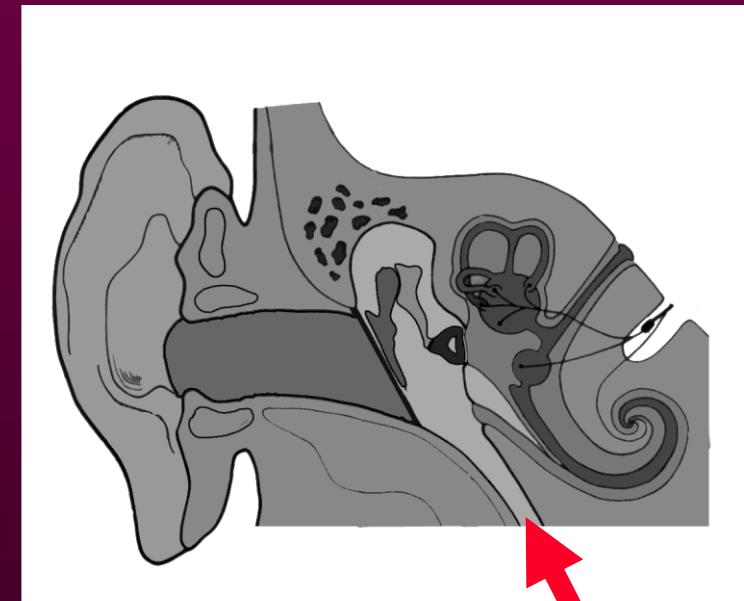
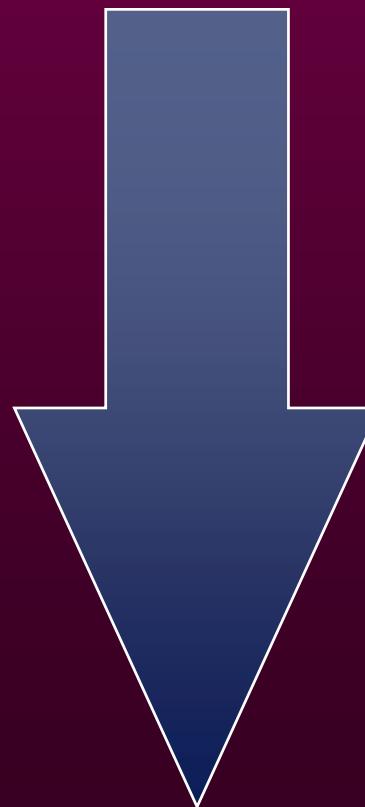
Lungs

Stomach

Intestine



Automatic



Forced



# Discover Diving



World Underwater Federation

## Equalisation

# Proper equalisation

Inhale water

Blow the nose

yawn

Ascend

Blow air from the nose to avoid  
the mask suction effect



# Discover Diving



World Underwater Federation

## Equalisation

# Proper equalisation

**ATTENTION**

Hood

Decongestant  
products

**AVOID**

Ear plugs



Discover Diving



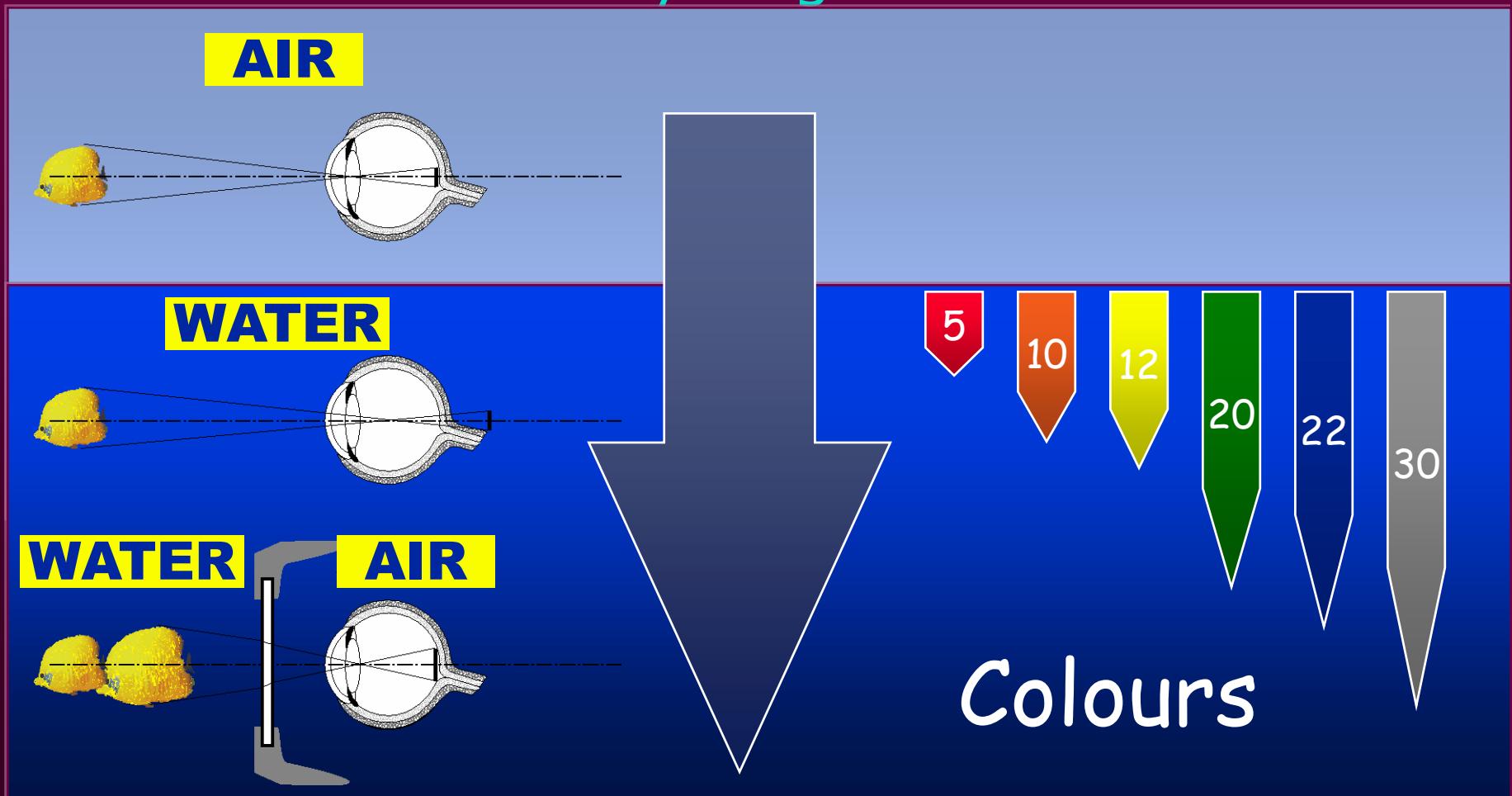
World Underwater Federation

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# Eye sight

### Eye sight





Discover Diving



World Underwater Federation

# Hearing

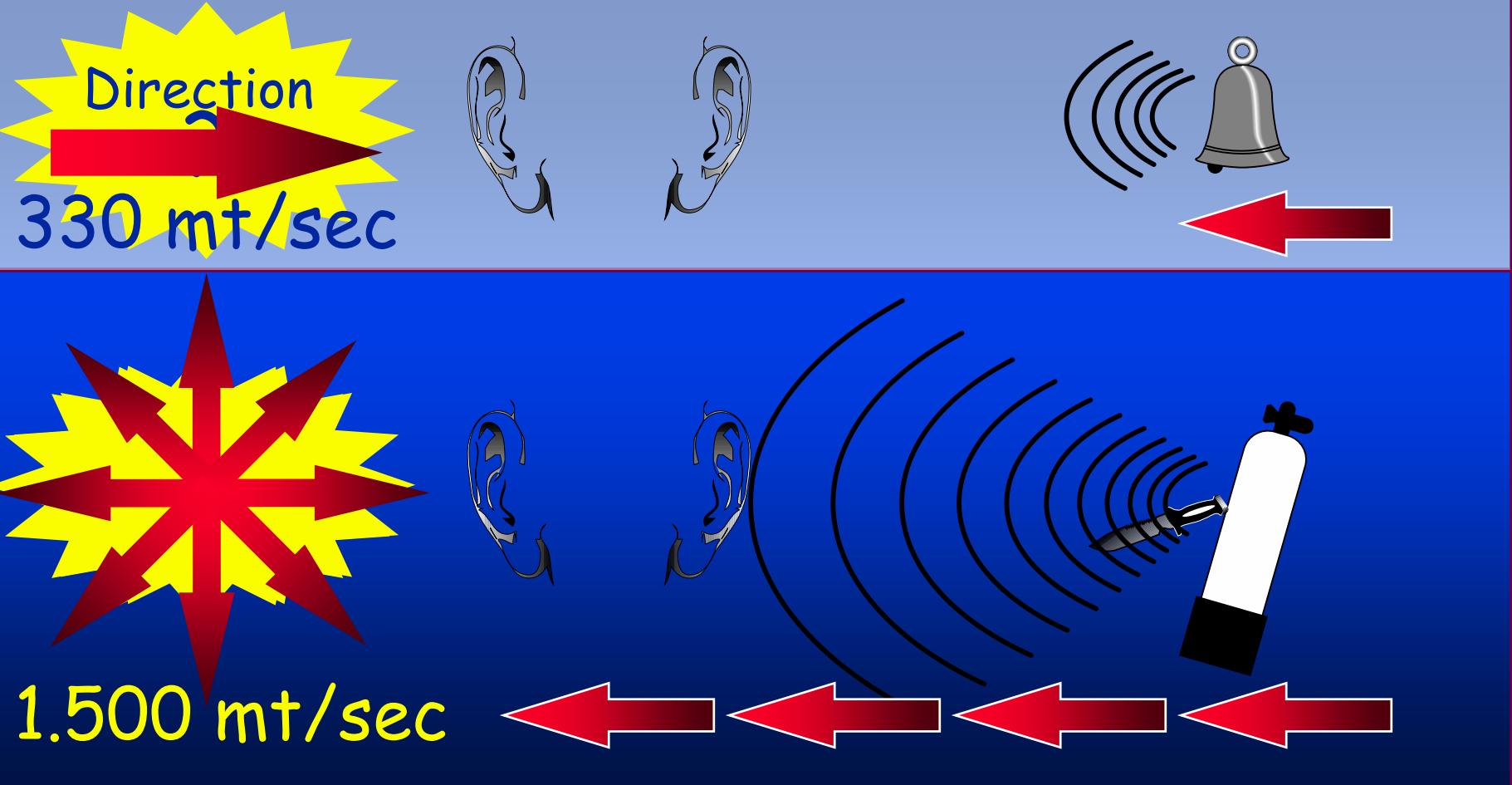


# Discover Diving



World Underwater Federation

## Hearing





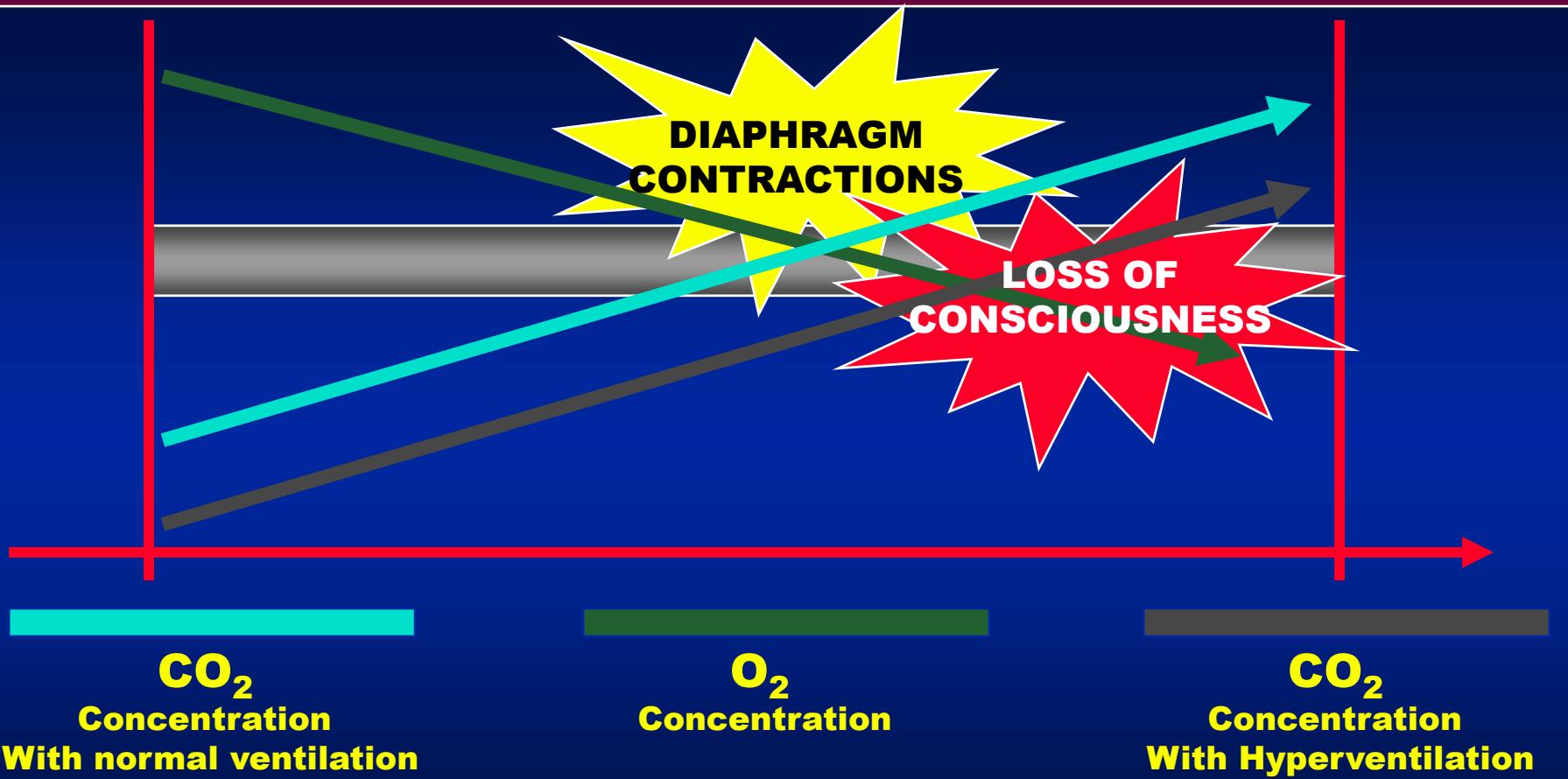
Discover Diving



World Underwater Federation

# Syncope

### Syncope





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# Snorkelling performances



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Snorkelling performances

ADAPTATION



# Discover Diving



## World Underwater Federation

### Snorkelling performances **ADAPTATION**

The human body  
adapts to the various  
Conditions founded  
in free diving  
Oxygen is limited  
And CO<sub>2</sub> increases

MOVE  
SLOWLY

TO AVOID ANY  
EXCESSIVE  
OXYGEN  
CONSUMPTION



Discover Diving



World Underwater Federation

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Snorkelling performances

TEACHING



# Discover Diving



World Underwater Federation

Snorkelling performances  
**TEACHING**

peaceful

Decrease  
In oxygen  
needs



Discover Diving



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Snorkelling performances

TRAINING



# Discover Diving



World Underwater Federation

## Snorkelling performances **TRAINING**

Muscular  
training

Improvement  
Of the  
cardio-vascular  
function

Improvement  
of  
Pulmonary  
capacity



# Discover Diving



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## Snorkelling performances

Adaptation

Teaching

Training



Discover Diving



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Planning  
snorkel  
activity



# Discover Diving



World Underwater Federation

## Planning snorkel activity

Purpose

Snorkelling

Photo

U.w.

Fishing

**EQUIPMENT  
CHOICE  
AND  
CHECK**

Depth

MAX



# Discover Diving



## World Underwater Federation

### Planning snorkel activity



Time  
Signals  
Search



Discover Diving



World Underwater Federation

# Signals



# Discover Diving



## World Underwater Federation

### Signals

OK

Down

Up

I am here

I am ok

Distress



**CMAS  
SIGNAL**



# Discover Diving



## World Underwater Federation

### Signals

OK

Down

Up

I am here

I am ok

Distress



**CMAS  
SIGNAL**



# Discover Diving



## World Underwater Federation

### Signals

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**CMAS  
SIGNAL**



# Discover Diving



## World Underwater Federation

### Signals

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Distress



**CMAS  
SIGNAL**



# Discover Diving



## World Underwater Federation

### Signals

OK

Down

Up

I am here

I am ok

Distress





# Discover Diving



## World Underwater Federation

### Signals

OK

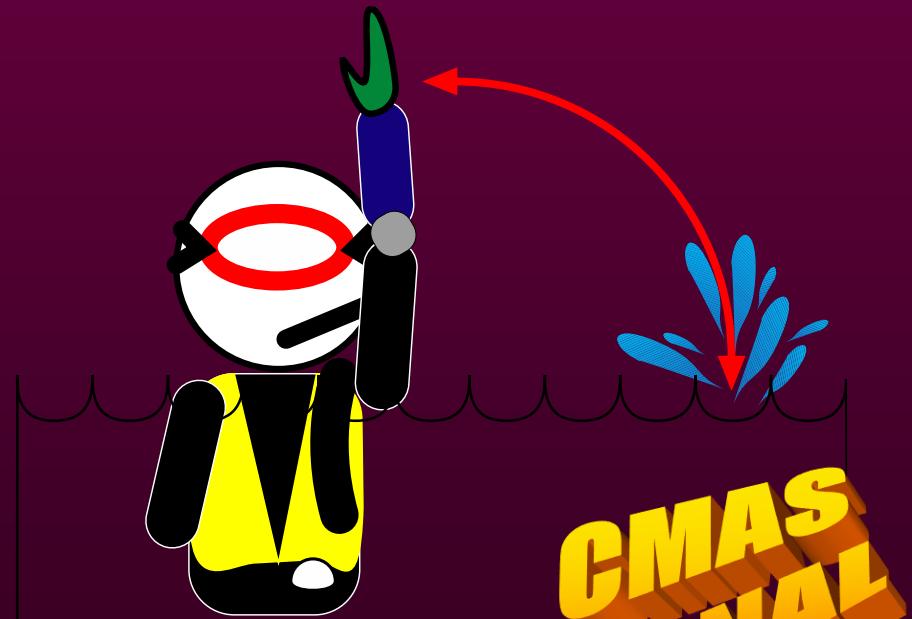
Down

Up

I am here

I am ok

Distress



**CMAS  
SIGNAL**



# Discover Diving



## World Underwater Federation





# Lesson I



World Underwater Federation

# Lesson 1



# Lesson I



World Underwater Federation

---

S.C.U.B.A.  
basic equipment



# Lesson I



World Underwater Federation

## Basic equipment

Mask

Snorkel

Fins

Belt

Weight

Suit

Gloves

Boots/Socks



# Lesson I



World Underwater Federation

## Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks

USE  
CHOICE  
MODELS  
MATERIALS  
DRESS  
MAINTENANCE



# Lesson I



World Underwater Federation

## Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks



### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks





# Lesson I



World Underwater Federation

## Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks



### Basic equipment

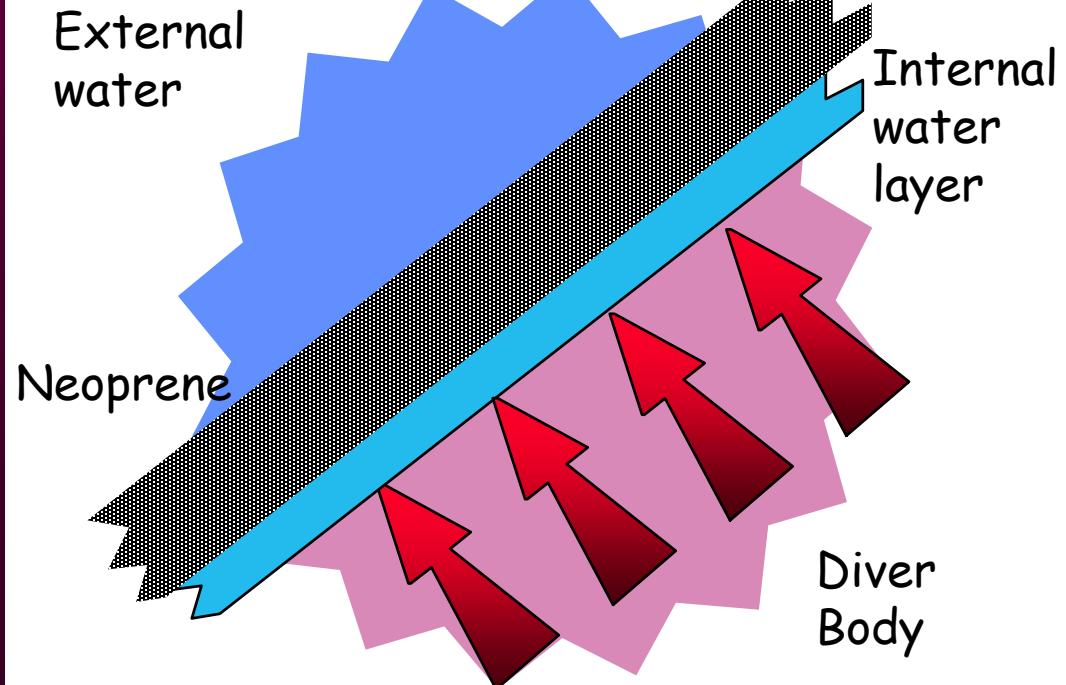
Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks



### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks

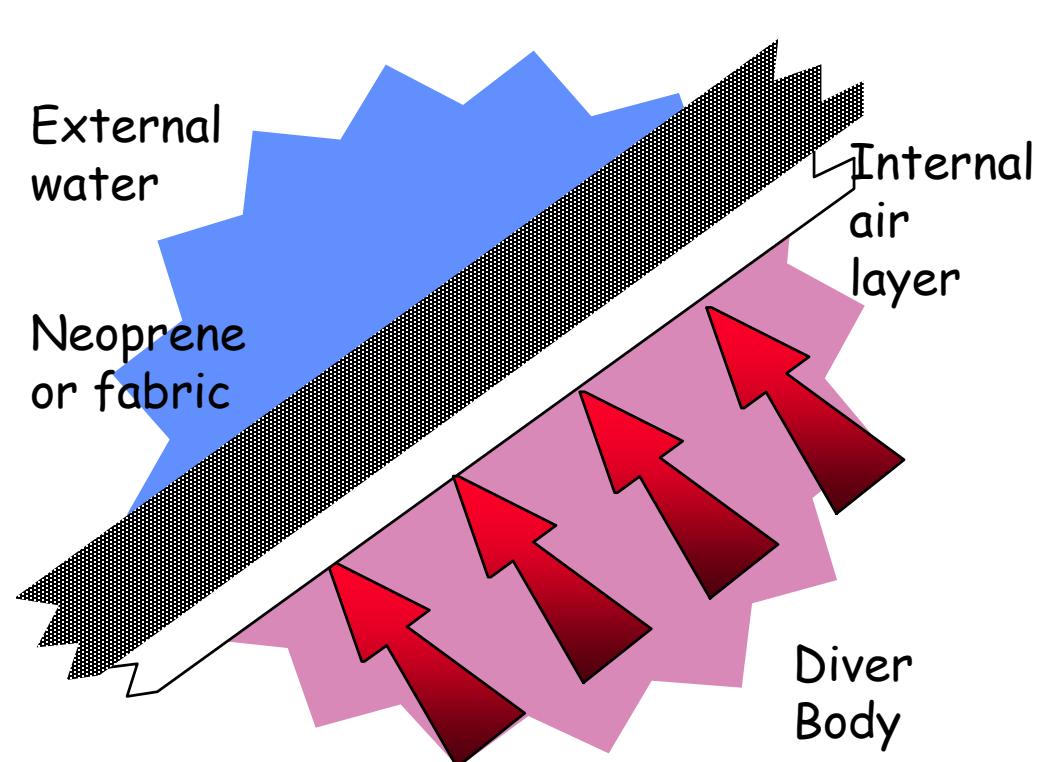
#### Wetsuit



### Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks

#### Dry suit





# Lesson I



World Underwater Federation

## Basic equipment

Mask  
Snorkel  
Fins  
Belt  
Weight  
Suit  
Gloves  
Boots/Socks





# Lesson I



World Underwater Federation

---

S.C.U.B.A.  
equipment



# Lesson I



World Underwater Federation

## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.



# Lesson I



World Underwater Federation

## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.

USE  
CHOICE  
MODELS  
MATERIALS  
CARRIAGE  
TEST  
MAINTENANCE



# Lesson I



World Underwater Federation

## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.





# Lesson I



World Underwater Federation

## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.

TEST





# Lesson I



World Underwater Federation

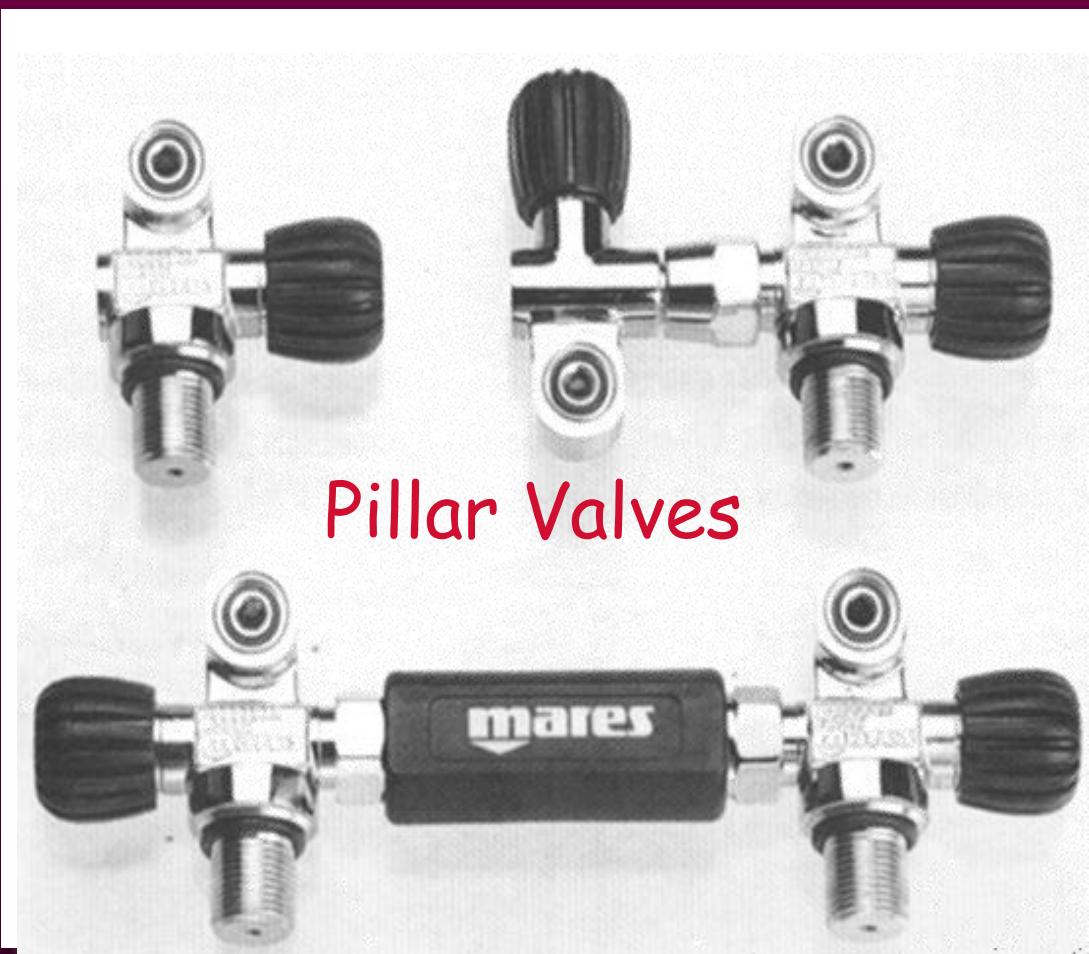
## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.





# Lesson I



World Underwater Federation

## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.





# Lesson I



World Underwater Federation

## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.





# Lesson I



World Underwater Federation

## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.





# Lesson I



World Underwater Federation

## S.C.U.B.A. equipment

Tank

Regulator

A.A.S.

B.C.D.





# Lesson I



World Underwater Federation

# Instruments



# Lesson I



World Underwater Federation

## Instruments

Pressure gauge

Depth gauge

Compass

Watch



# Lesson I



World Underwater Federation

## Instruments

Pressure gauge

Depth gauge

Compass

Watch

USE  
CHOICE  
MODELS  
MATERIALS  
PURPOSE  
FUNCTIONS  
MAINTENANCE



# Lesson I



World Underwater Federation

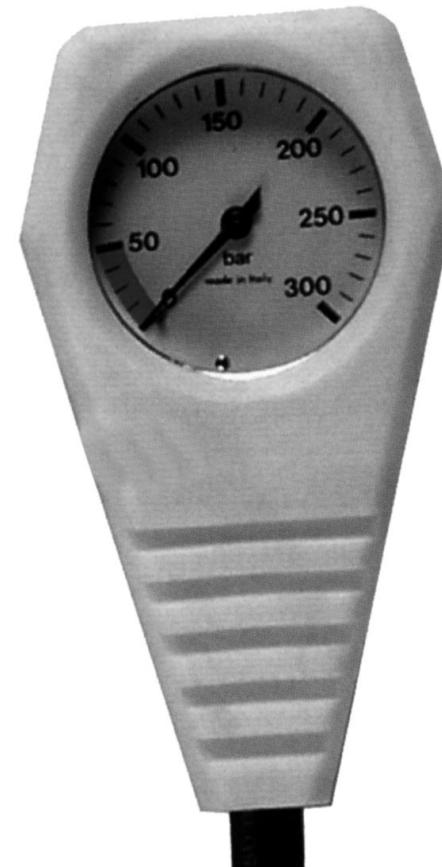
## Instruments

Pressure gauge

Depth gauge

Compass

Watch





# Lesson I



World Underwater Federation

## Instruments

Pressure gauge

Depth gauge

Compass

Watch





# Lesson I



World Underwater Federation

## Instruments

Pressure gauge

Depth gauge

Compass

Watch





# Lesson I



World Underwater Federation

## Instruments

Pressure gauge

Depth gauge

Compass

Watch





## Lesson I



World Underwater Federation

---

# Accessories



# Lesson I



World Underwater Federation

## Accessories

Surface marker buoy

Knife

Whistle

Torch

Bag



# Lesson I



World Underwater Federation

## Accessories

Surface marker buoy

Knife

Whistle

Torch

Bag

USE

CHOICE

MODELS

PURPOSE

### Accessories

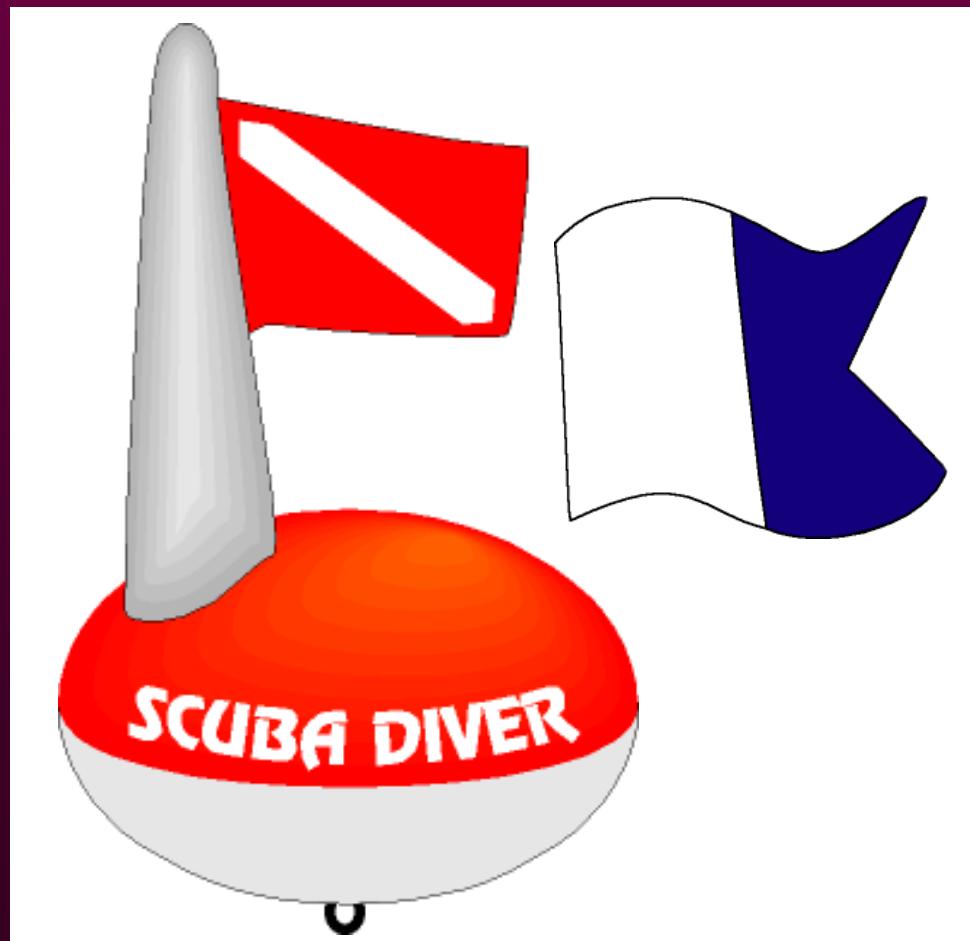
Surface marker buoy

Knife

Whistle

Torch

Bag



### Accessories

Surface marker buoy

Knife

Whistle

Torch

Bag





# Lesson I



World Underwater Federation

## Accessories

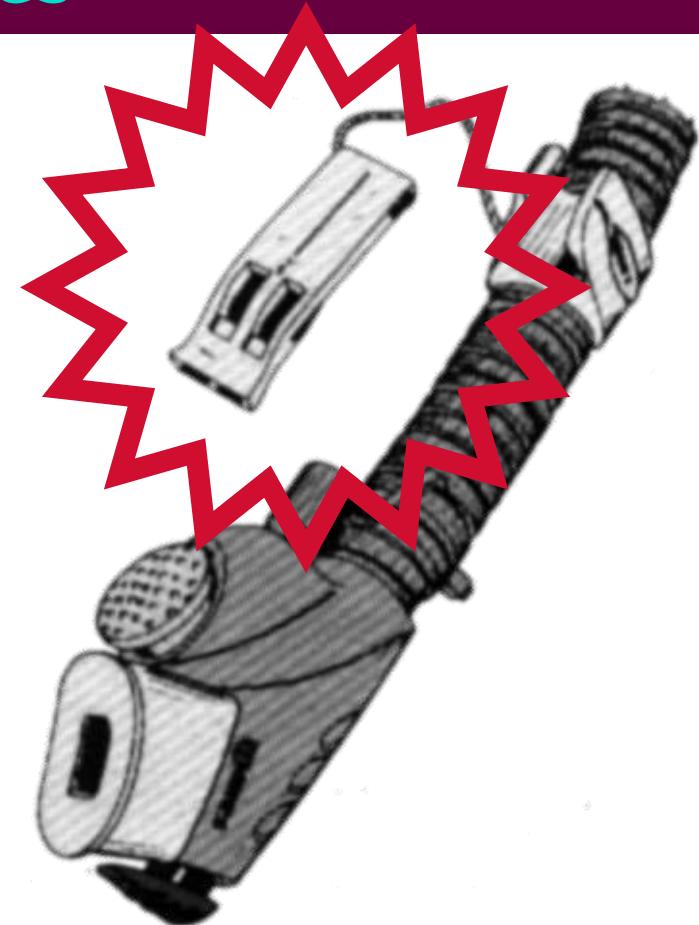
Surface marker buoy

Knife

Whistle

Torch

Bag





# Lesson I



World Underwater Federation

## Accessories

Surface marker buoy

Knife

Whistle

Torch

Bag





# Lesson I



World Underwater Federation

## Accessories

Surface marker buoy

Knife

Whistle

Torch

Bag





# Lesson I



World Underwater Federation

---

# Dressing order



# Lesson I



World Underwater Federation

Assembling S.C.U.B.A.

Tank

B.C.D.

Regulator



# Lesson I



World Underwater Federation

## Dressing order

Suit

Boots/Socks

Weight Belt

Devices

Fins

Mask

Snorkel

Gloves



# Lesson I



World Underwater Federation

Dressing order

Standing  
Sitting  
In water



# Lesson I



World Underwater Federation

# Buoyancy



# Lesson I



World Underwater Federation

## Buoyancy

### Suit



Positive



Weight

Neutral

### Body structure



Positive

Neutral

Negative

Depth



# Lesson I



World Underwater Federation

**NEVER  
HOLD  
THE BREATH**



# Lesson I



World Underwater Federation

---

# Adjustment



# Lesson I



World Underwater Federation

## Equalisation Proper Equalisation

Inhale water

Blow the nose

yawn

Ascend

Blow air from the nose to avoid  
the Mask suction effect



# Lesson I



World Underwater Federation

# Perceptions



# Lesson I



World Underwater Federation

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Eye sight

CLOSER

BIGGER



## Lesson I



World Underwater Federation

Hearing

# FASTER

It's not clear where  
The sound comes from



## Lesson I



World Underwater Federation

The sense of touch

NOT CLEAR  
PERCEPTION



# Lesson I



World Underwater Federation

---

The sense of smell

**ABSENT**



# Lesson I



World Underwater Federation

# Signals



# Lesson I



World Underwater Federation

## Signals

OK

Down

Up

I am here

I am ok

Distress





# Lesson I



World Underwater Federation

## Signals

OK

Down

Up

I am here

I am ok

Distress



**CMAS  
SIGNAL**



# Lesson I



World Underwater Federation

## Signals

OK

Down

Up

I am here

I am ok

Distress



**CMAS  
SIGNAL**



# Lesson I



World Underwater Federation

## Signals

OK

Down

Up

I am here

I am ok

Distress





# Lesson I



World Underwater Federation

## Signals

OK

Down

Up

I am here

I am ok

Distress





# Lesson I



World Underwater Federation

## Signals

OK

Down

Up

I am here

I am ok

Distress





# Lesson I

World Underwater Federation  
World Underwater Federation





## Lección II

Confederación Mundial de Actividades Subacuáticas



# Lección 2



## Lección II



Confederación Mundial de Actividades Subacuáticas

# Física básica

# TORRICELLI

$$\begin{aligned} P_{\text{Atmosférica}} + P_{\text{Idrostática}} \\ = \\ P_{\text{Absoluta}} \end{aligned}$$



Presión  
Atmosférica

Presión  
Hidrostática

1 atm

1,01 bar

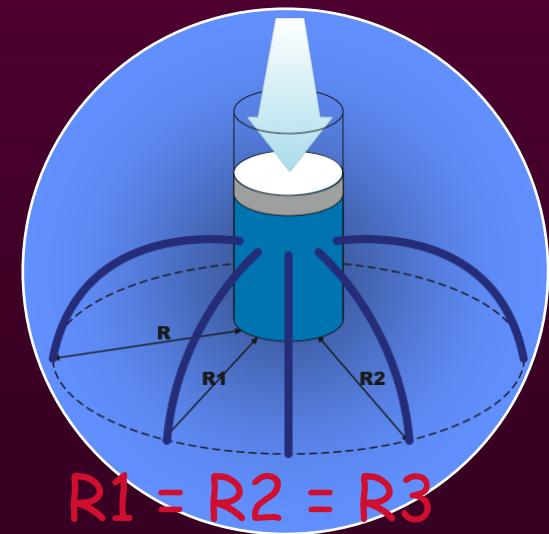
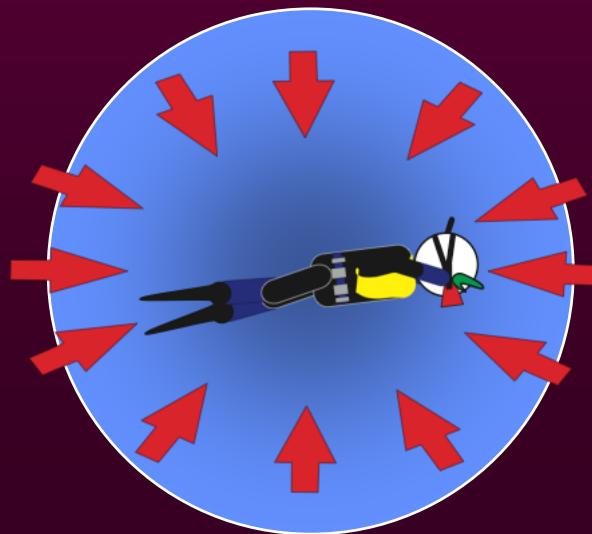
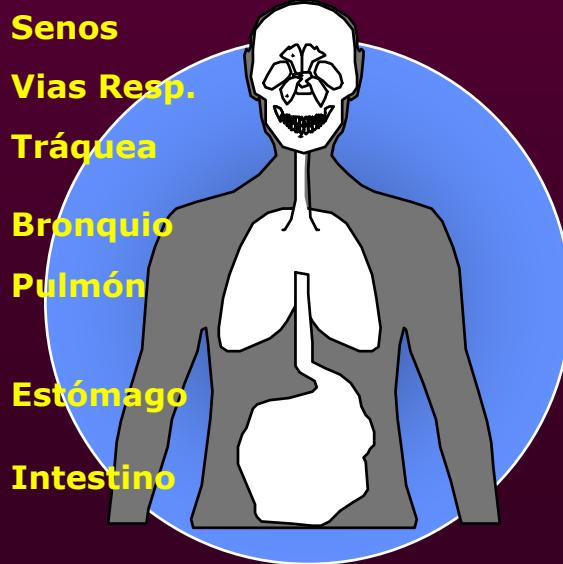
760 mm Hg

1.033 mBar

1 Kg/cm<sup>2</sup>

# PASCAL

**“Si se aplica presión a un fluido en reposo dentro de un recipiente, entonces esa presión se transmite por igual en todas las direcciones dentro del recipiente”**

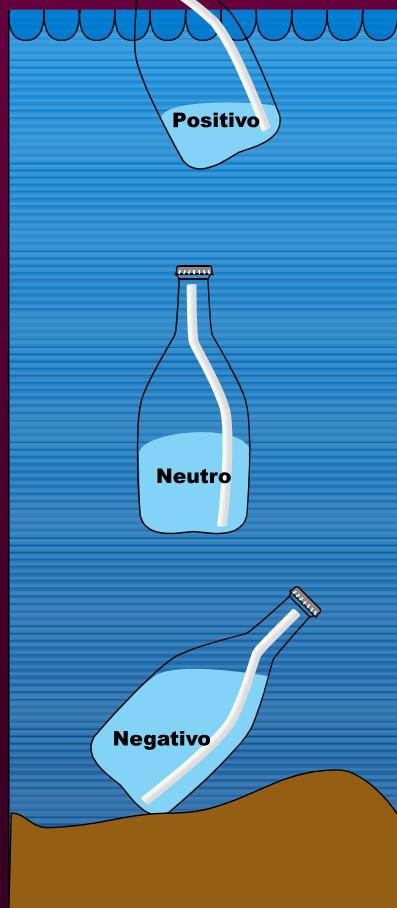


# ARCHIMEDE

"un cuerpo sumergido en agua sufrirá un empuje hacia arriba igual al peso del agua que desaloja"



## Flotabilidad en el agua



Positiva



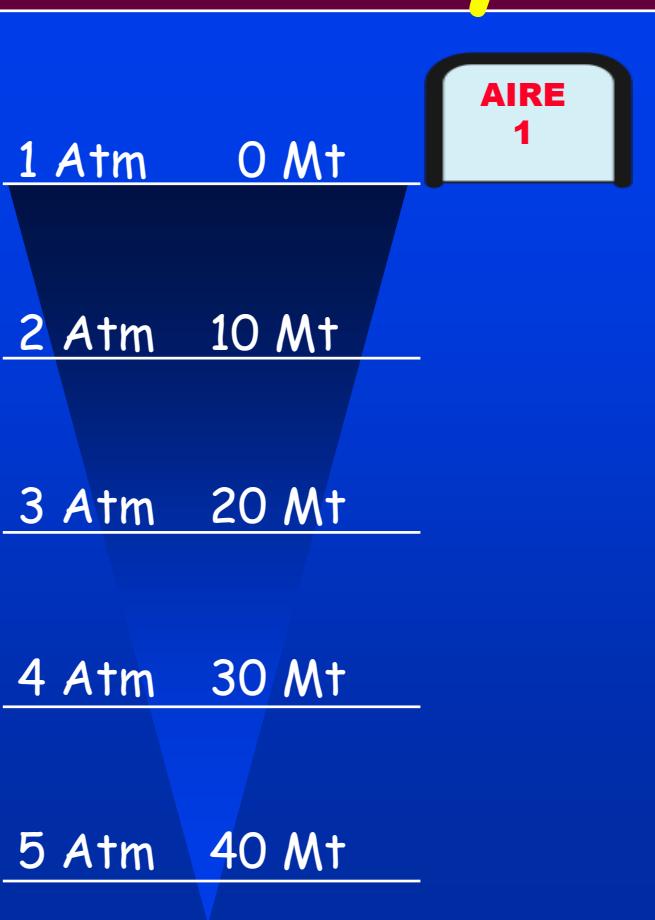
Neutra



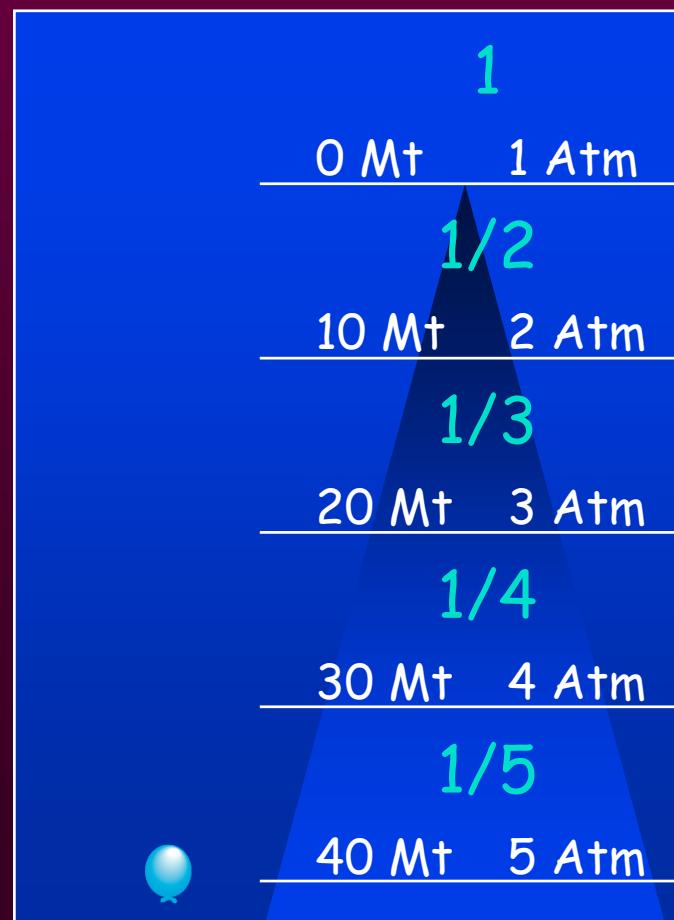
Negativa



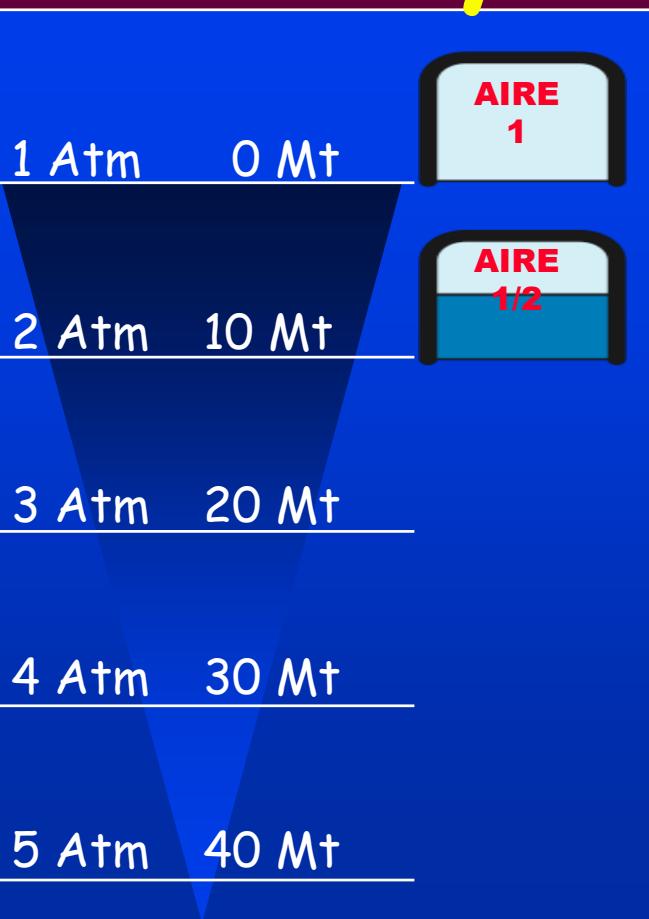
# Boyle e Mariotte



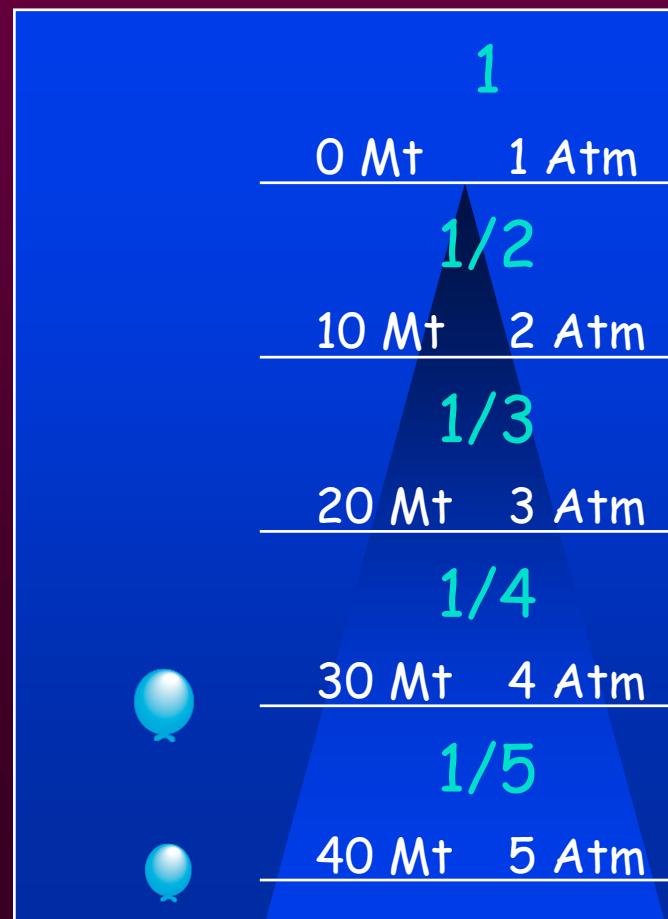
"A temperatura constante, el volumen de un gas varía de manera inversamente proporcional a la presión absoluta, mientras que la densidad de un gas varía de manera directamente proporcional a la presión absoluta"



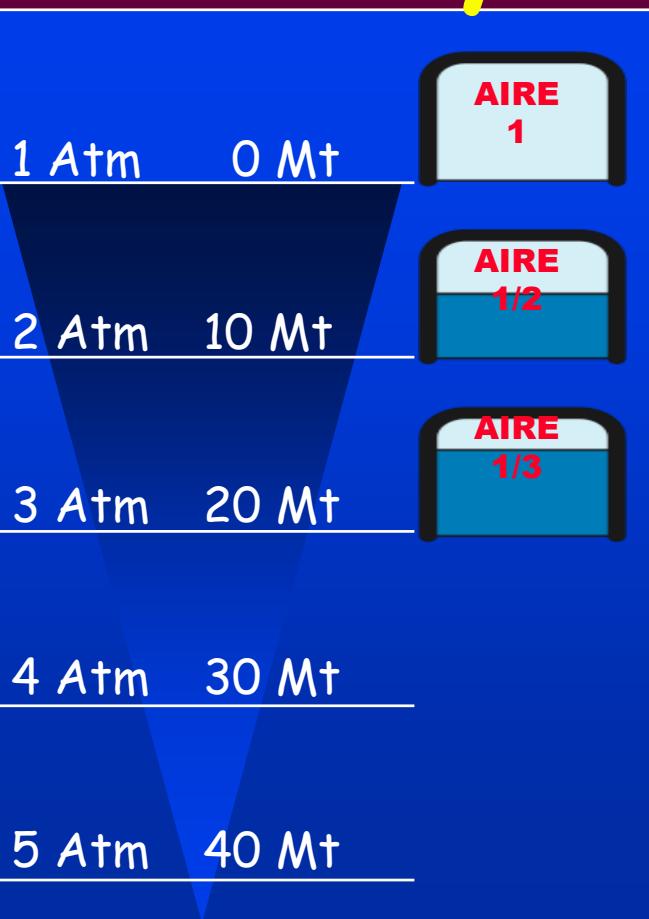
# Boyle e Mariotte



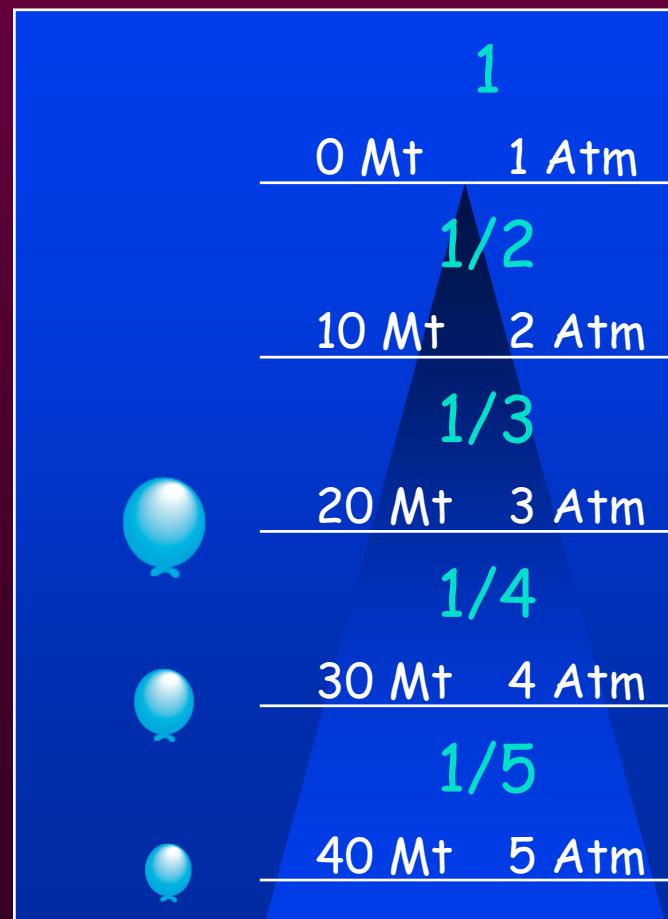
“A temperatura constante, el volumen de un gas varía de manera inversamente proporcional a la presión absoluta, mientras que la densidad de un gas varía de manera directamente proporcional a la presión absoluta”



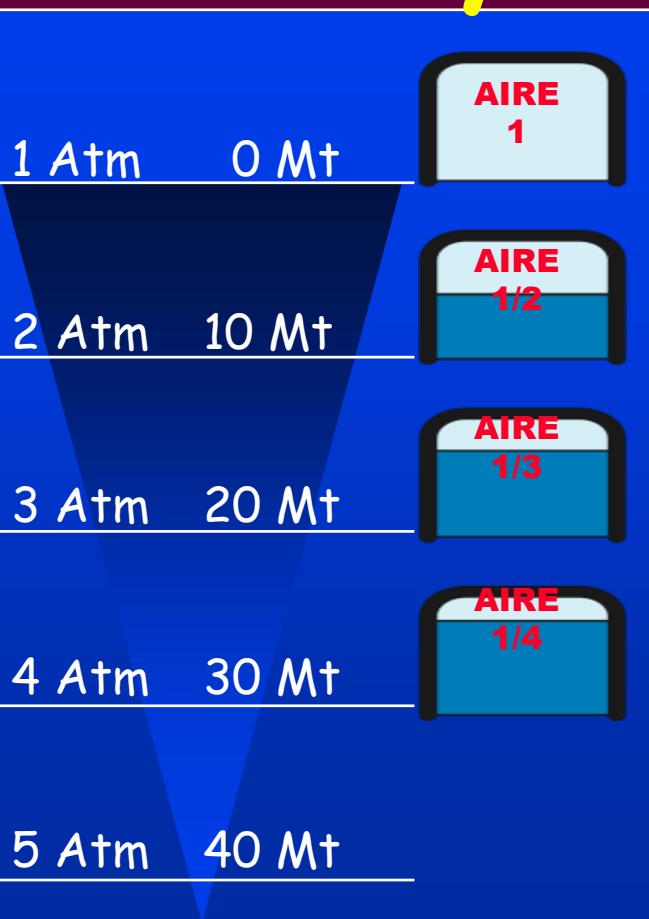
# Boyle e Mariotte



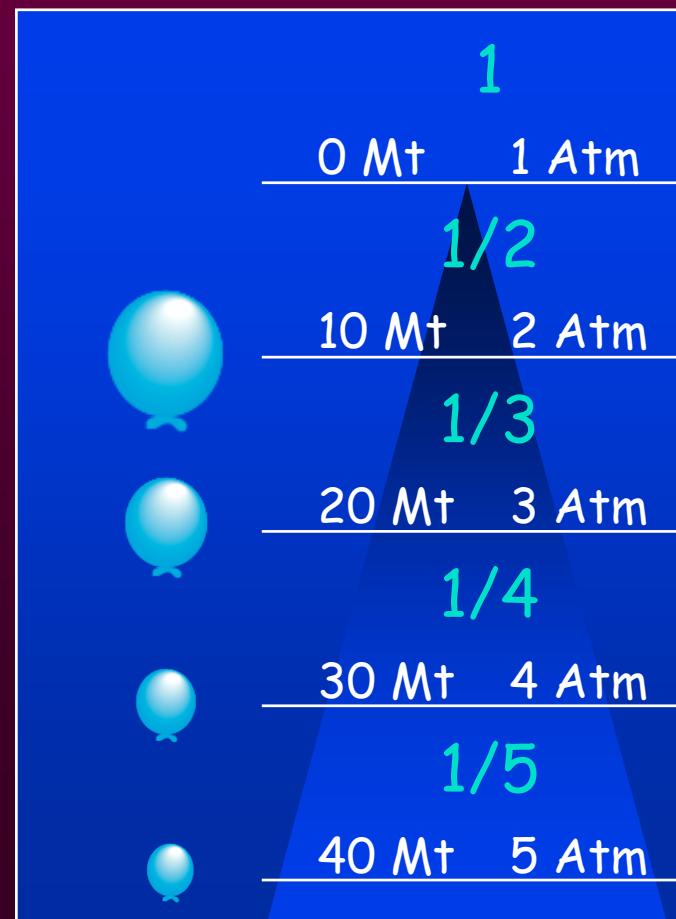
“A temperatura constante, el volumen de un gas varía de manera inversamente proporcional a la presión absoluta, mientras que la densidad de un gas varía de manera directamente proporcional a la presión absoluta”



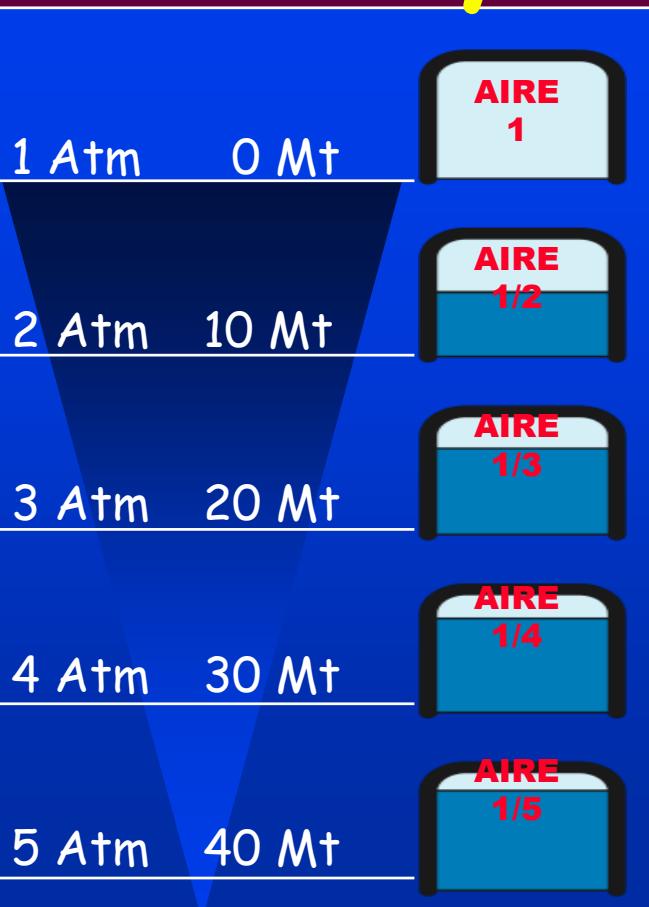
# Boyle e Mariotte



“A temperatura constante, el volumen de un gas varía de manera inversamente proporcional a la presión absoluta, mientras que la densidad de un gas varía de manera directamente proporcional a la presión absoluta”



# Boyle e Mariotte



“A temperatura constante, el volumen de un gas varía de manera inversamente proporcional a la presión absoluta, mientras que la densidad de un gas varía de manera directamente proporcional a la presión absoluta”





## Lección II



Confederación Mundial de Actividades Subacuáticas

# RITMO DE RESPIRACIÓN REGULAR



## Lección II



Confederación Mundial de Actividades Subacuáticas

**NO CONTENER  
NUNCA  
LA RESPIRACIÓN**



# Lección II

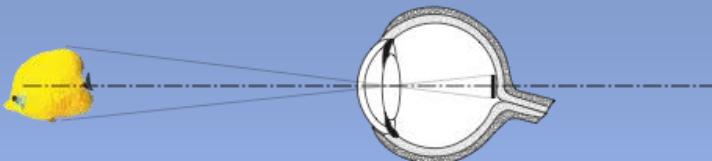


Confederación Mundial de Actividades Subacuáticas

# Vista

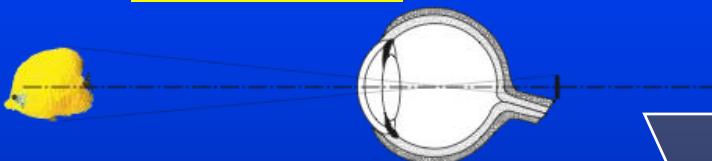
## Vista

**AIRE**



Vision clara

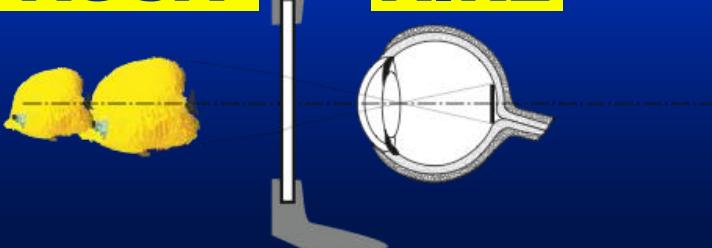
**AGUA**



Refracción

**AGUA**

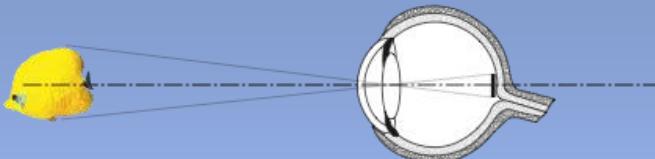
**AIRE**



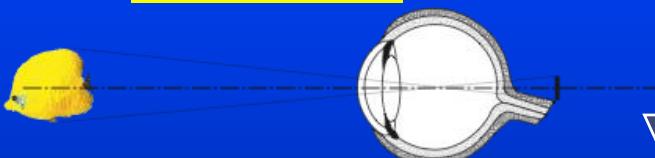
Vision correcta  
más cerca  
más grandes

## Vista

**AIRE**

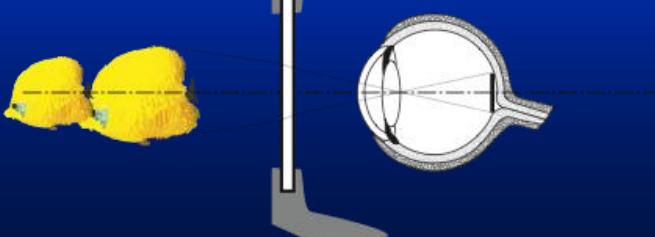


**AGUA**



**AGUA**

**AIRE**



*Colores*

5

10

12

20

22

30



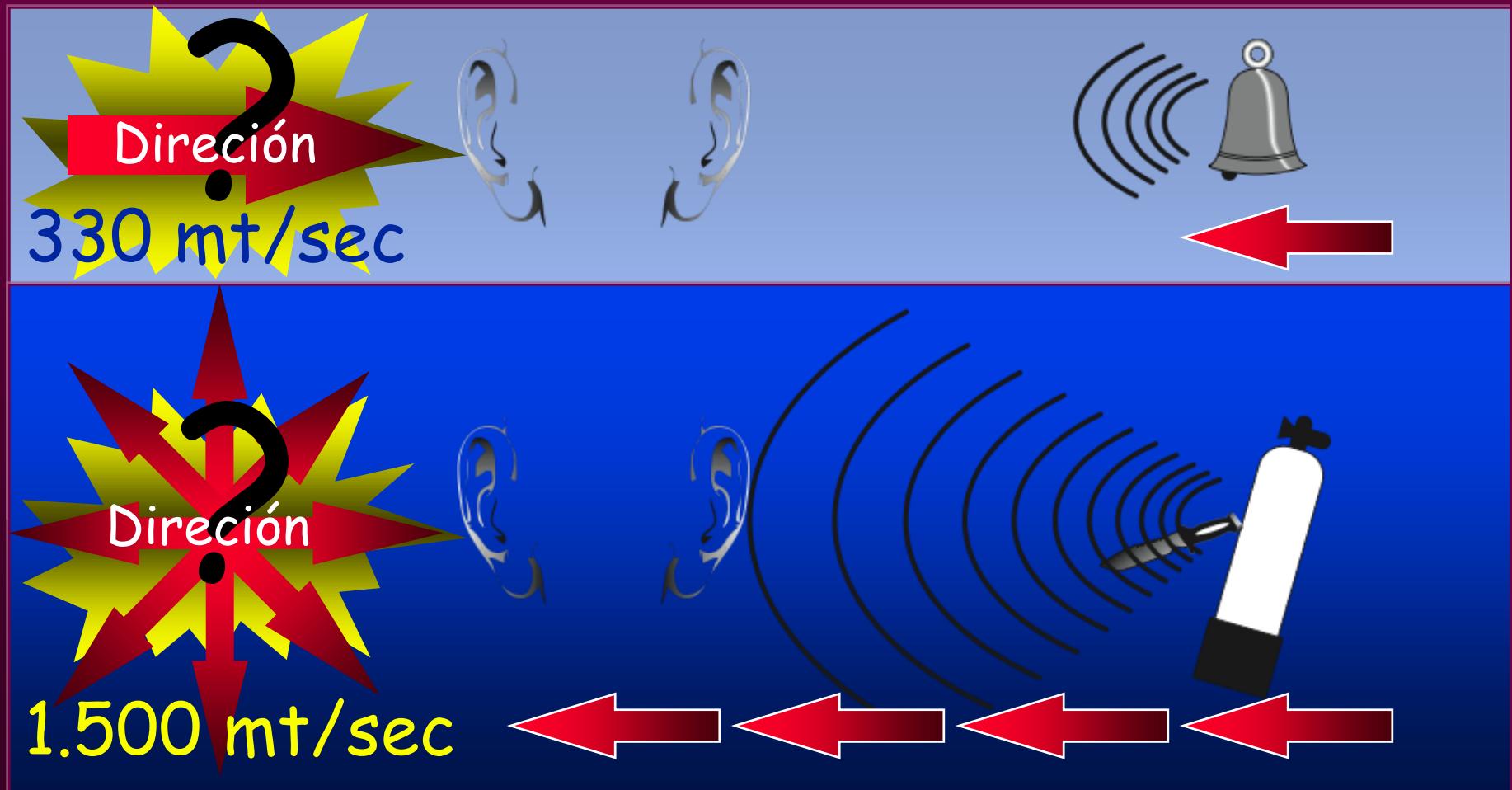
## Lección II



Confederación Mundial de Actividades Subacuáticas

# El sonido

## Sentido del oído





## Lección II



Confederación Mundial de Actividades Subacuáticas

# Compensación

## Compensación

**Senos**

**Vías Respiratorias**

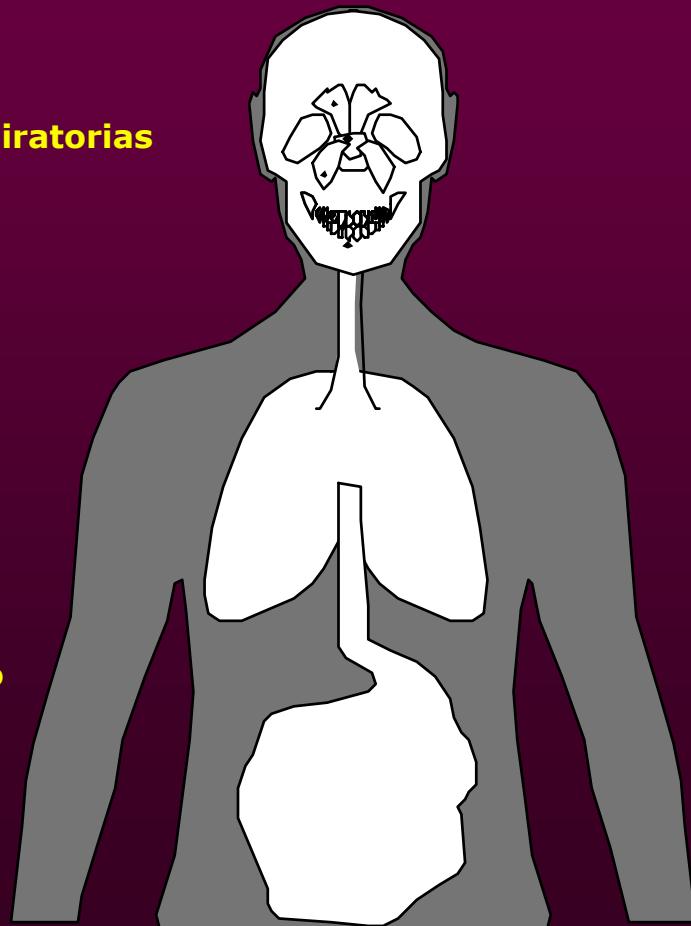
**Tráquea**

**Bronquio**

**Pulmón**

**Estómago**

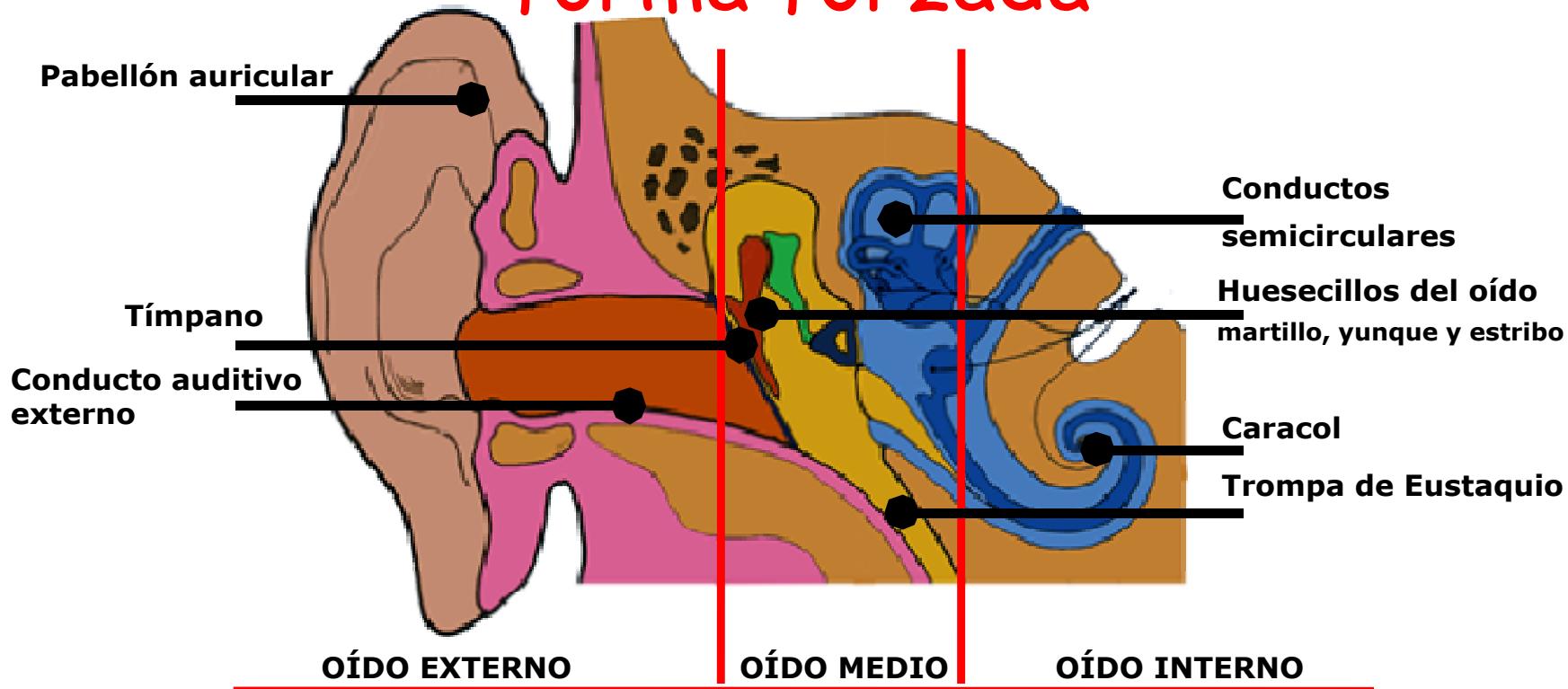
**Intestino**



*Los espacios de aire se compensan por la respiración*

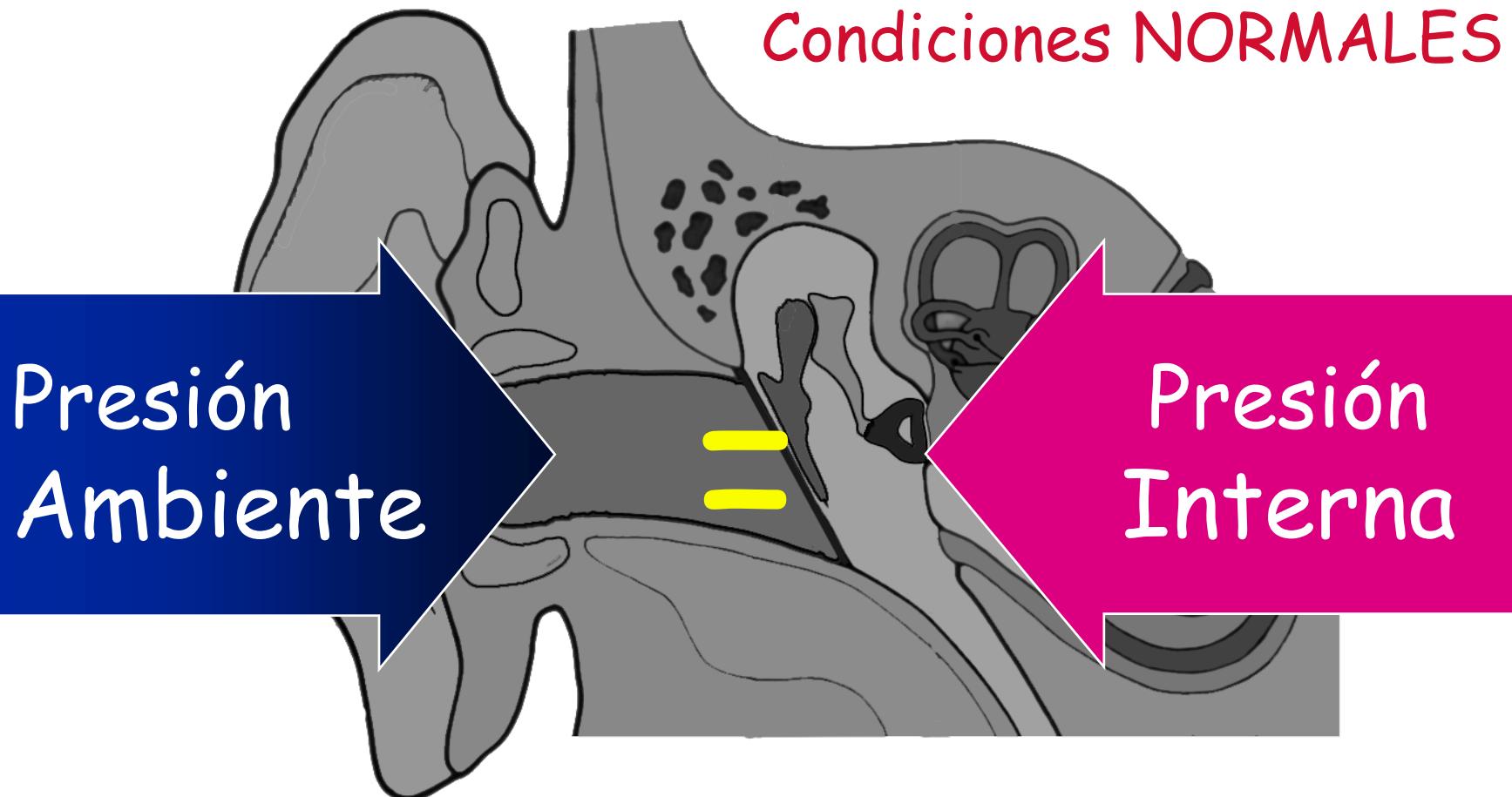
## Compensación

**El oído debe ser compensado de forma forzada**



## Compensación

Condiciones NORMALES



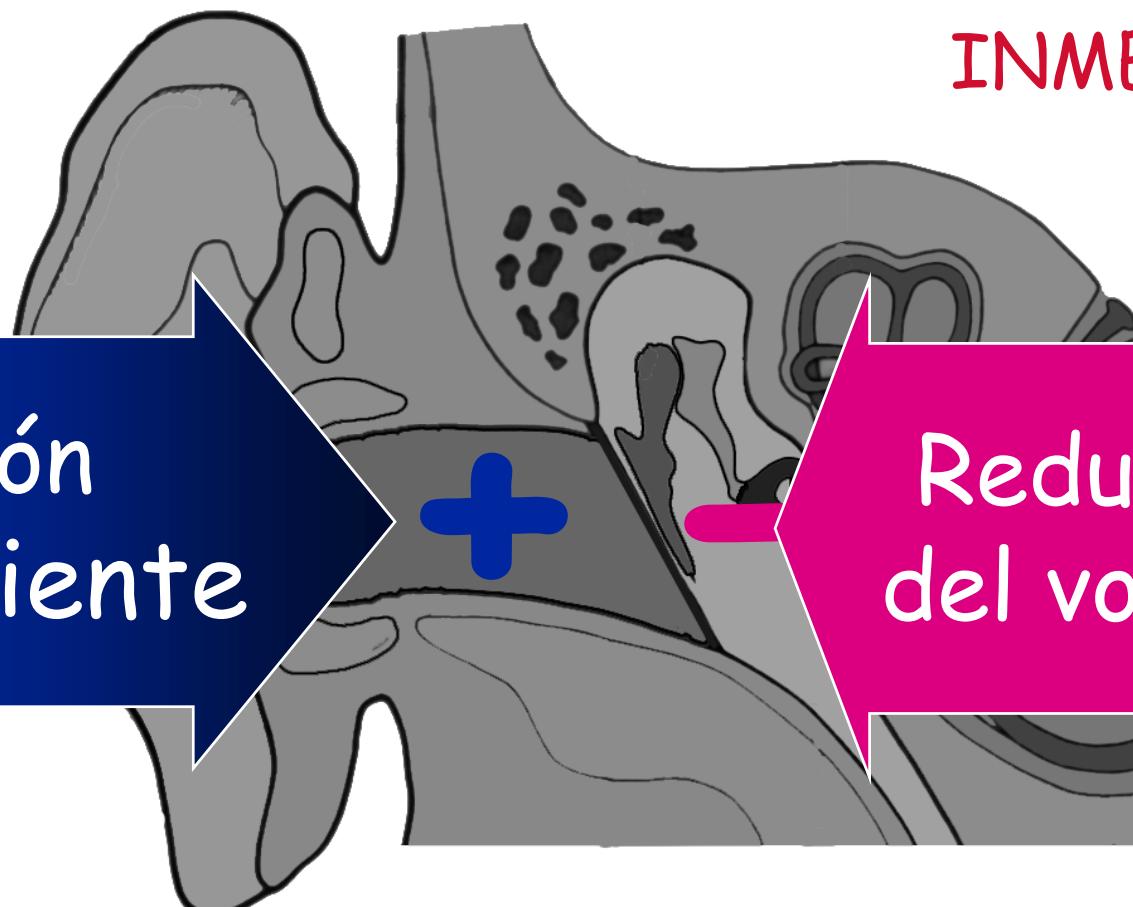
## Compensación

**INMERSIÓN**

Presión  
Ambiente

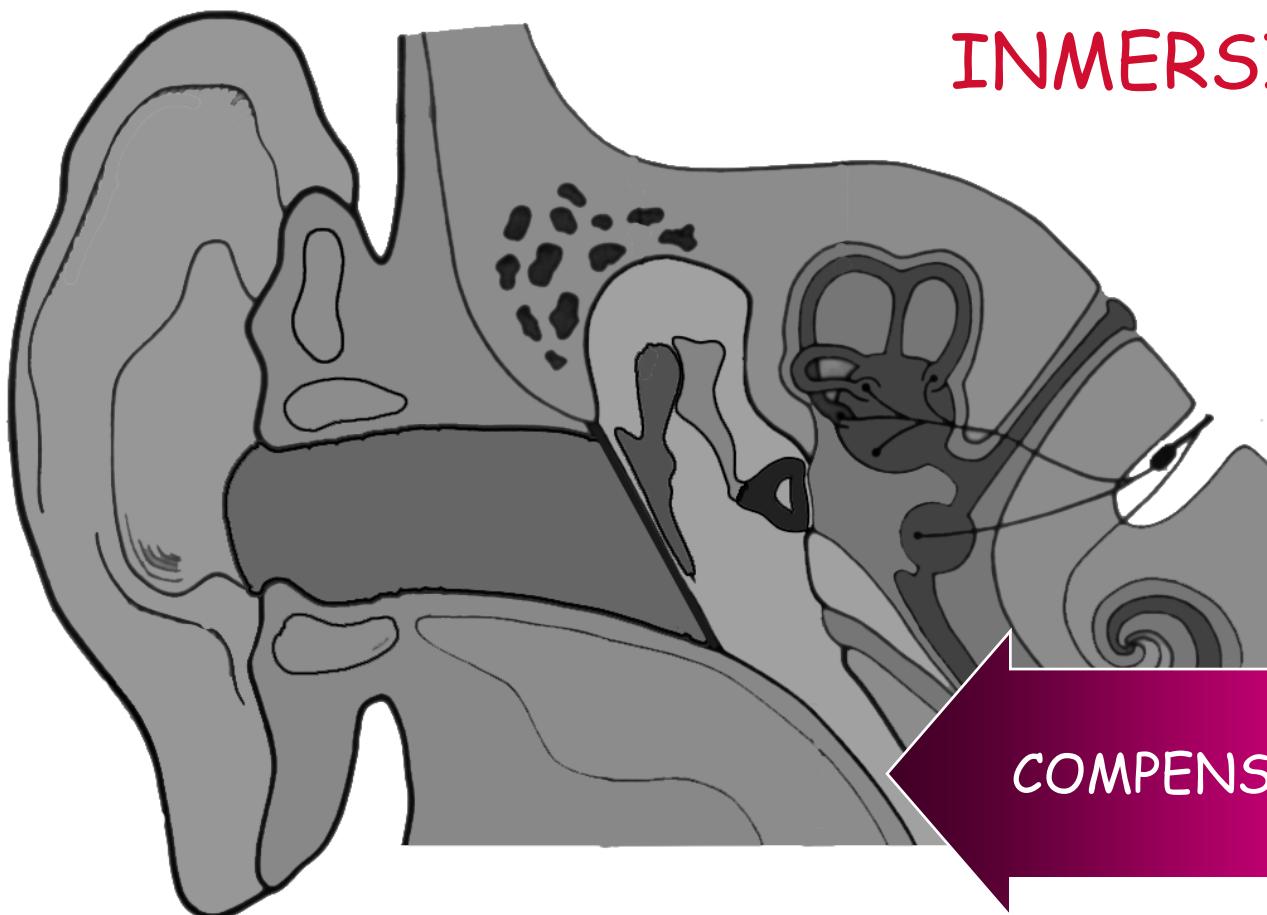


Reducción  
del volumen



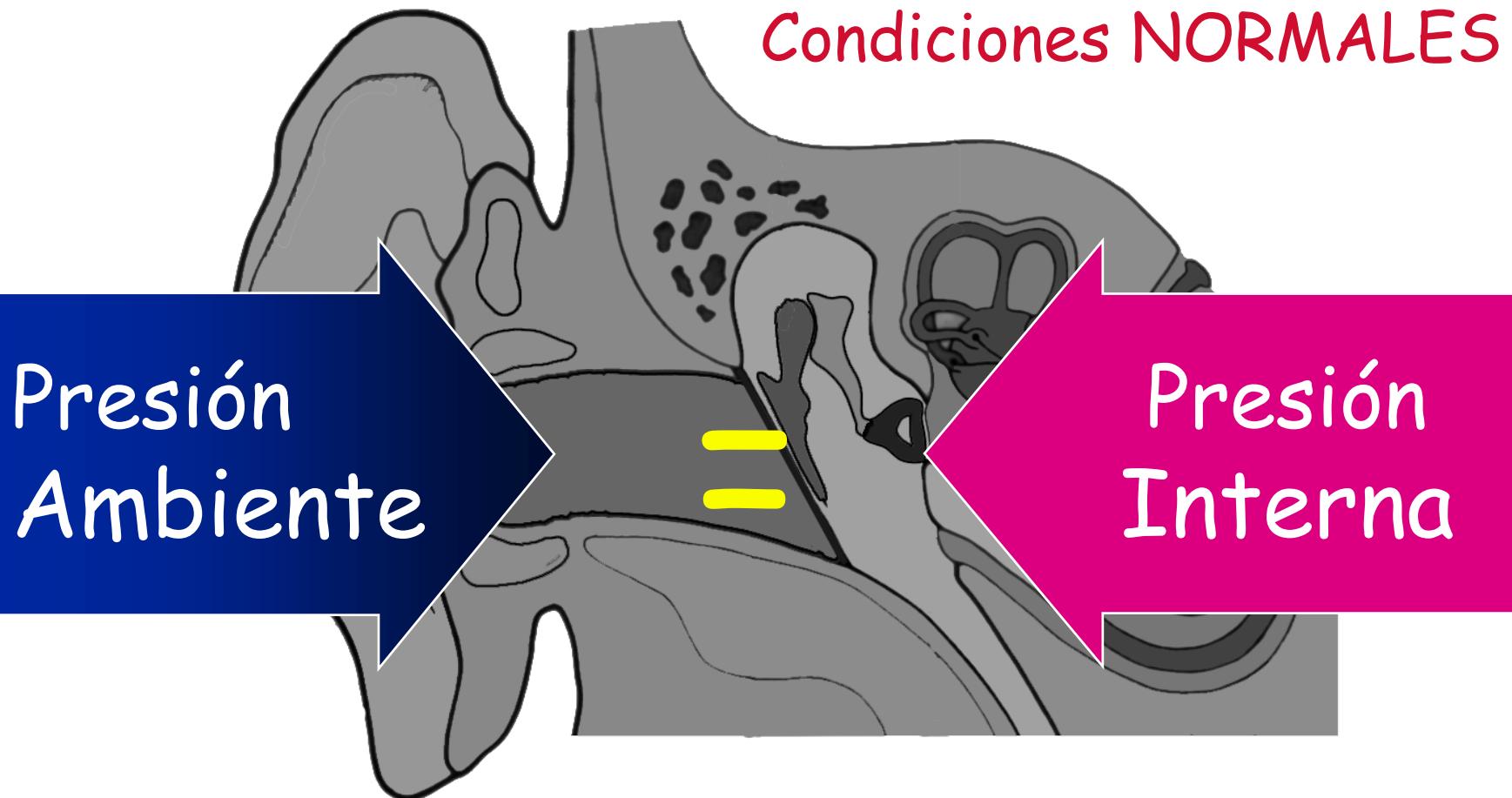
## Compensación

INMERSIÓN



## Compensación

Condiciones NORMALES





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Compensación

VALSALVA

MARCANTE  
ODAGLIA



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Compensación

**PARA COMPENSAR DE FORMA CORRECTA**

**INHALE AGUA DE ÑAR**

**SOIPLE POR LA NARIZ**

**BOSTEZAR ASCENDER LIGERAMENTE EL AIRE**

**QUE QUEDA EN LA GAFAS DEBE COMPENSARSE  
TAMBIÉN SOPLANDO POR LA NARIZ**



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Compensación

# Per compensare bene

CIUDADO

CAPUCHA TRAJE

GOTAS NASALES

TAPONES  
PARA  
LOS OÍDOS



# Lección II



Confederación Mundial de Actividades Subacuáticas

## Compensar el equipo

INMERSIÓN





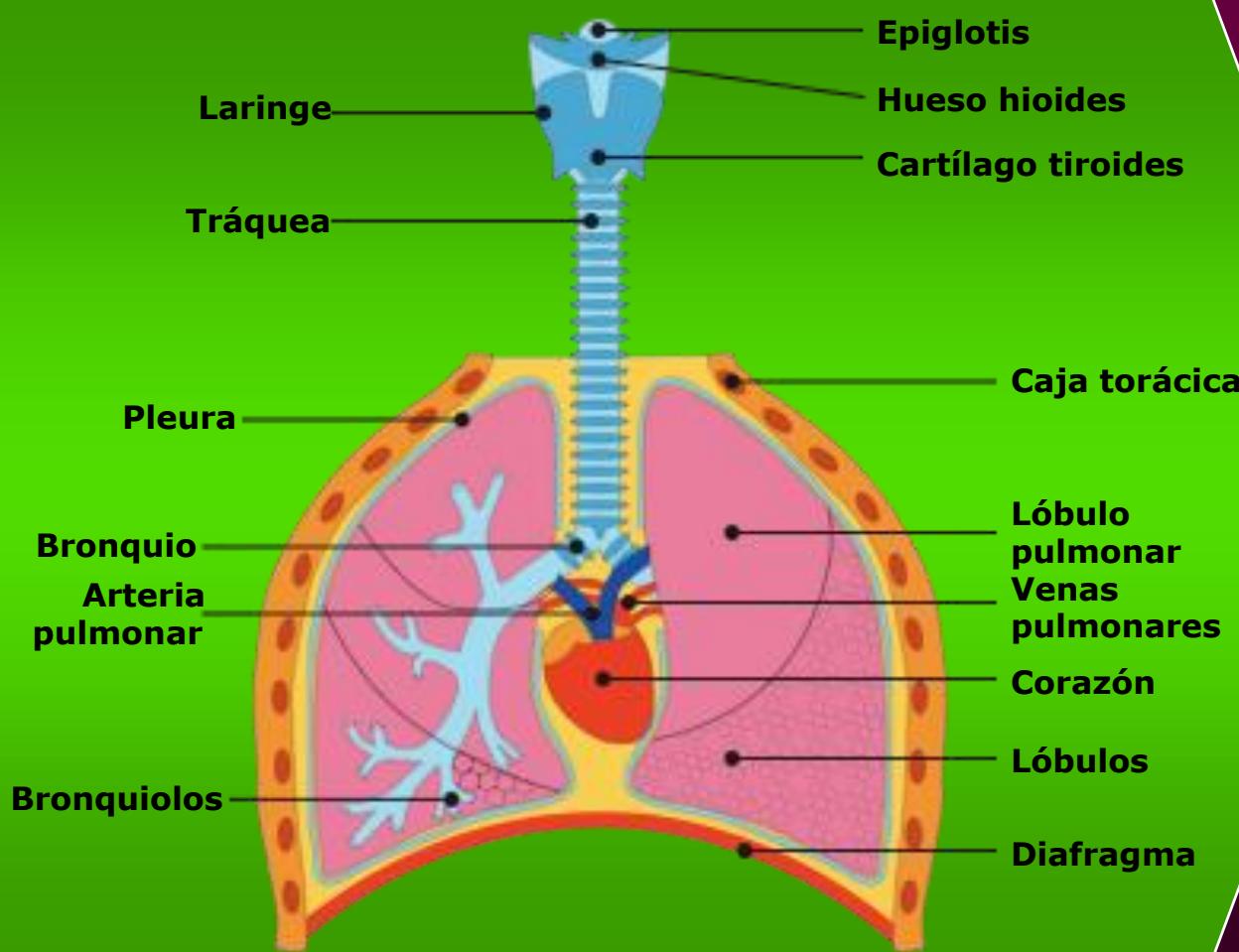
## Lección II



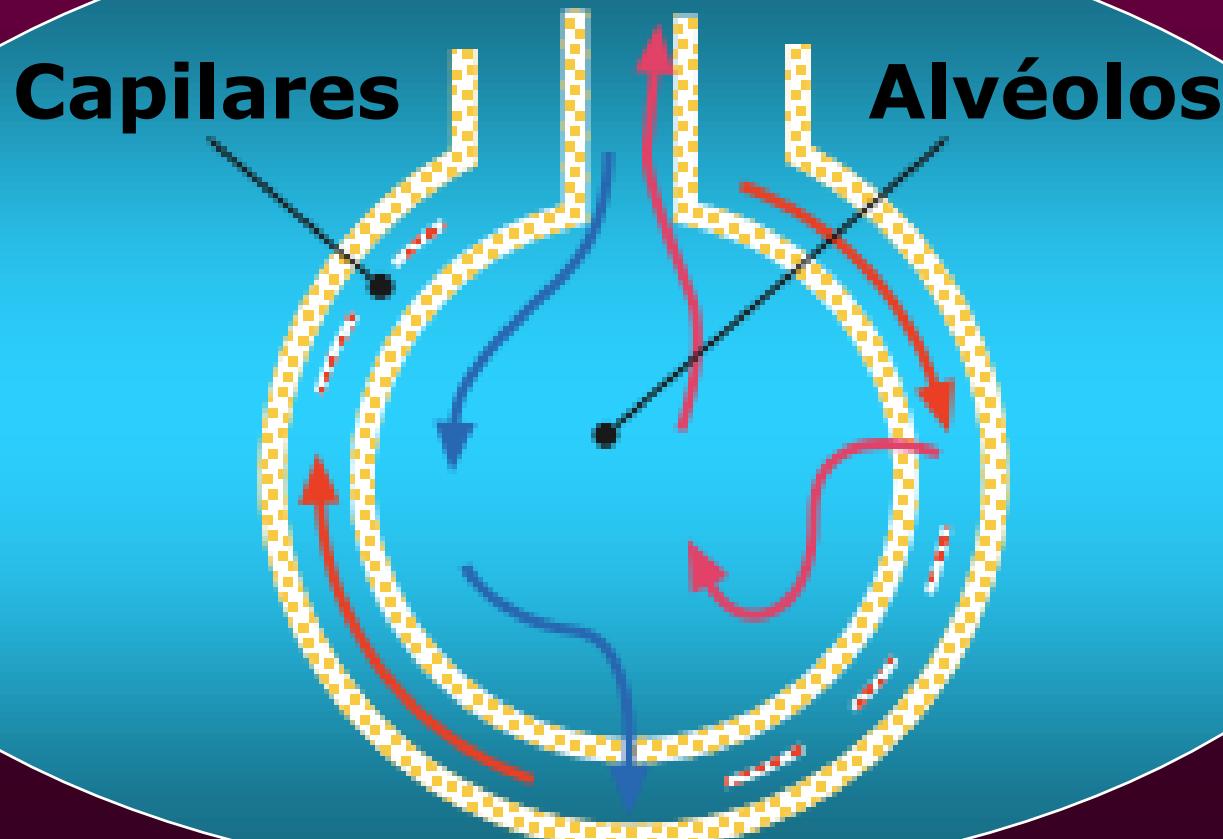
Confederación Mundial de Actividades Subacuáticas

# El cuerpo humano

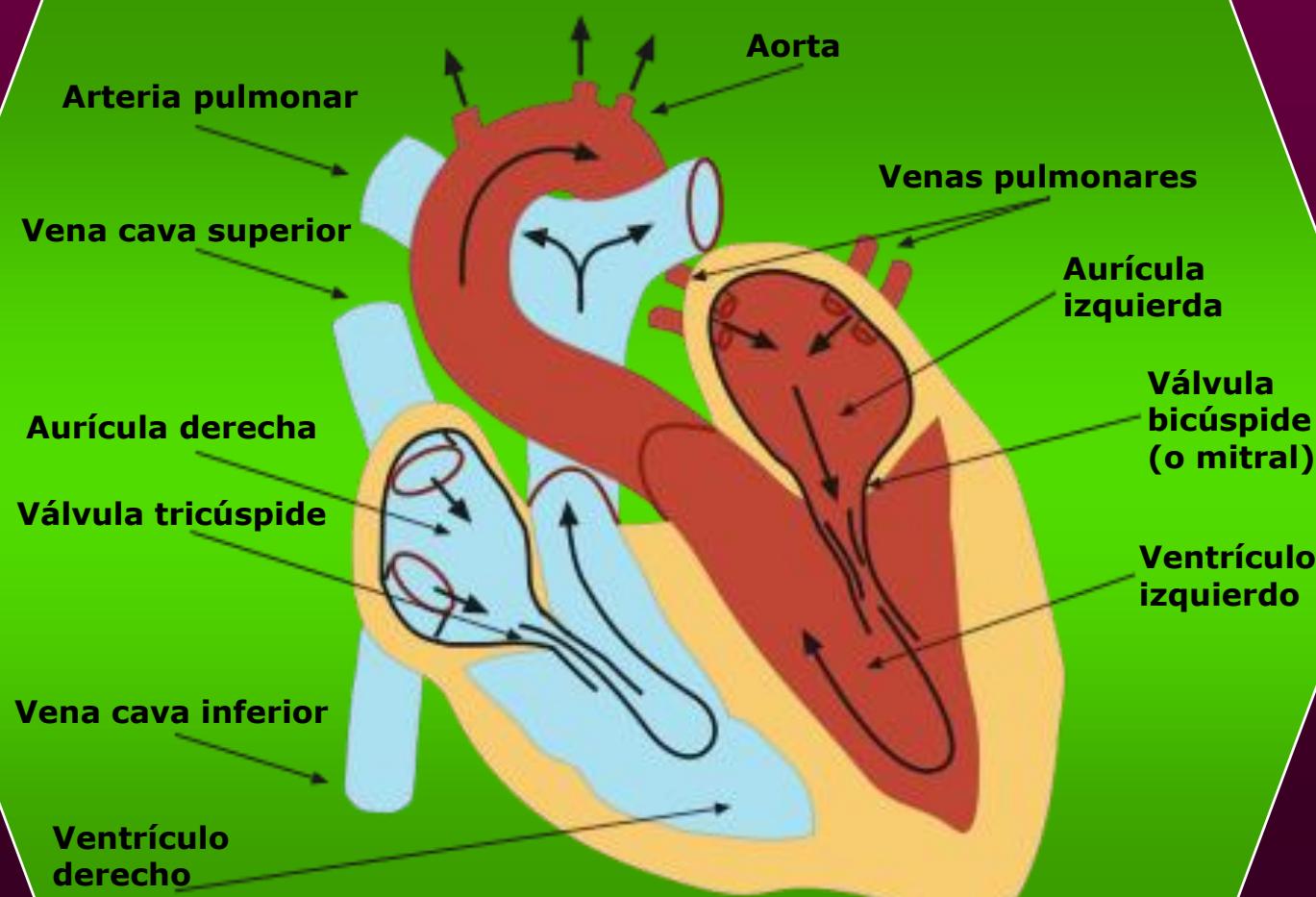
## El sistema respiratorio



## Los alveolos y los vasos pulmonares



## El sistema cardio-circulatorio



## El sistema cardio-circulatorio





## Lección II



Confederación Mundial de Actividades Subacuáticas

# El metabolismo humano



## Lección II



Confederación Mundial de Actividades Subacuáticas

El metabolismo humano

Respiración correcta

O<sub>2</sub>

CO<sub>2</sub>



## Lección II



Confederación Mundial de Actividades Subacuáticas

El metabolismo humano

Respiración correcta

O<sub>2</sub>

CO<sub>2</sub>



## Lección II



Confederación Mundial de Actividades Subacuáticas

El metabolismo humano

# Respiración incorrecta

O<sub>2</sub>



## Lección II



Confederación Mundial de Actividades Subacuáticas

El metabolismo humano

# Respiración incorrecta

$\text{CO}_2$



## Lección II



Confederación Mundial de Actividades Subacuáticas

El metabolismo humano

# Respiración incorrecta

$O_2$

$CO_2$



## Lección II



Confederación Mundial de Actividades Subacuáticas

El metabolismo humano

# Respiración incorrecta

INSUFICIENCIA  
RESPIRATORIA  
 $\text{CO}_2$

El metabolismo humano

# Respiración incorrecta





## Lección II



Confederación Mundial de Actividades Subacuáticas

El metabolismo humano

# Respiración incorrecta



**INSUFICIENCIA  
RESPIRATORIA**



**HIPOXIA**



## Lección II



Confederación Mundial de Actividades Subacuáticas

# Hipertermia



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Hipertermia



EXPOSICIÓN  
EXCESIVA  
AL CALOR  
EXTERNO



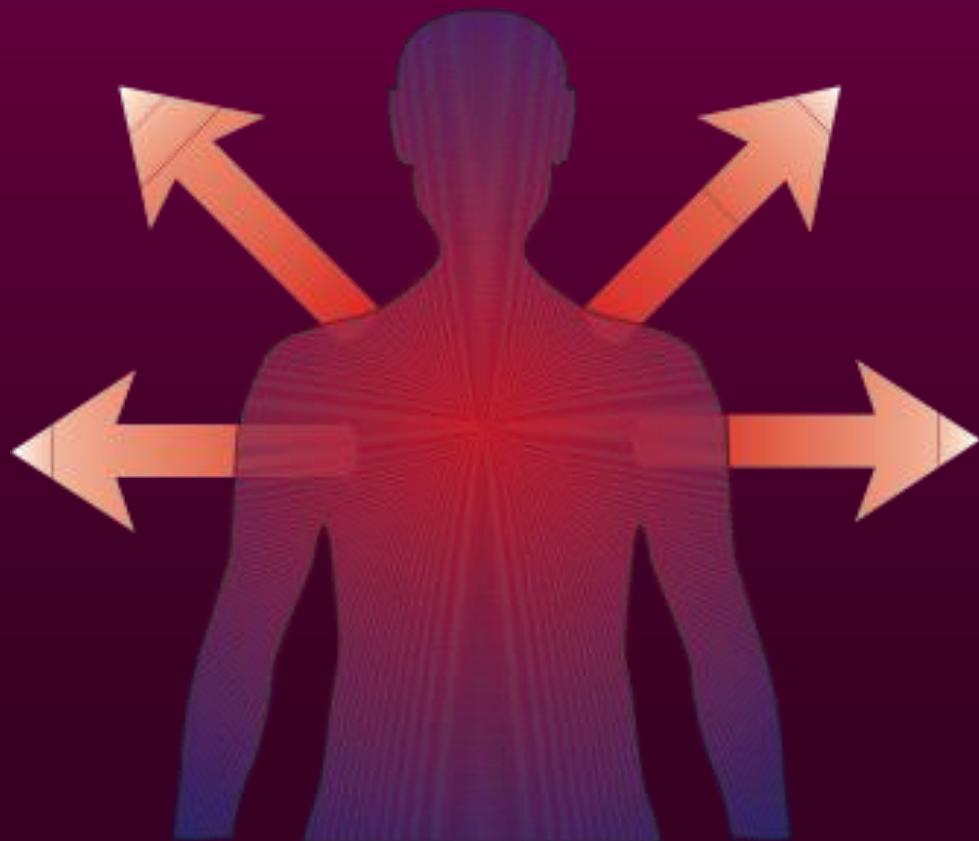
## Lección II



Confederación Mundial de Actividades Subacuáticas

# Hipotermia

## Hipotermia



**EXCESIVA  
PÉRDIDA  
DE CALOR**



## Lección II



Confederación Mundial de Actividades Subacuáticas

# Accidentes de buceo

## Accidentes de buceo

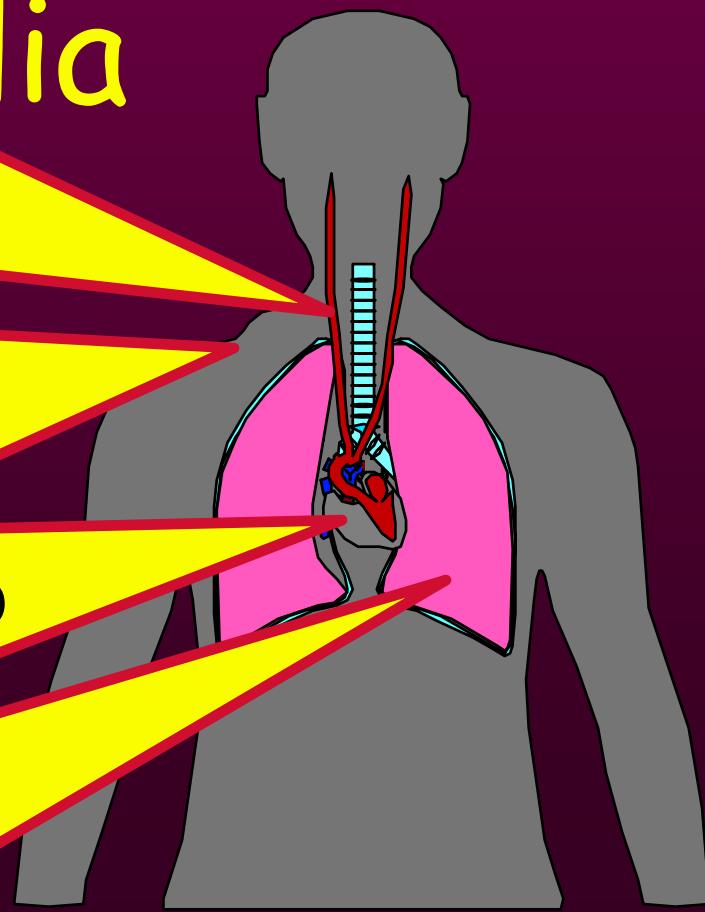
# Embolia

**EMBOLIA GASEOSA**

**ENFISEMA SOBCUTÁNEO**

**ENFISEMA MEDIASTÍNICO**

**PNEUMOTÓRAX**





## Lección II



Confederación Mundial de Actividades Subacuáticas

# Señales de buceo



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Vale  
Abajo  
Arriba  
Aceleración  
No entiendo  
Incorrecto



## Señales de buceo

Vale

Abajo

Arriba

Aceleración

No entiendo

Incorrecto





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Vale  
Abajo  
Arriba  
Aceleración  
No entiendo  
Incorrecto





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Vale  
Abajo  
Arriba  
Aceleración  
No entiendo  
Incorrecto





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Vale  
Abajo  
Arriba  
Aceleración  
No entiendo  
Incorrecto





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Vale  
Abajo  
Arriba  
Aceleración  
No entiendo  
Incorrecto





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Atar

Mareo

Calma - Flotar

Barco

Presión

Más despacio



**SEÑAL  
CMAS**



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Atar

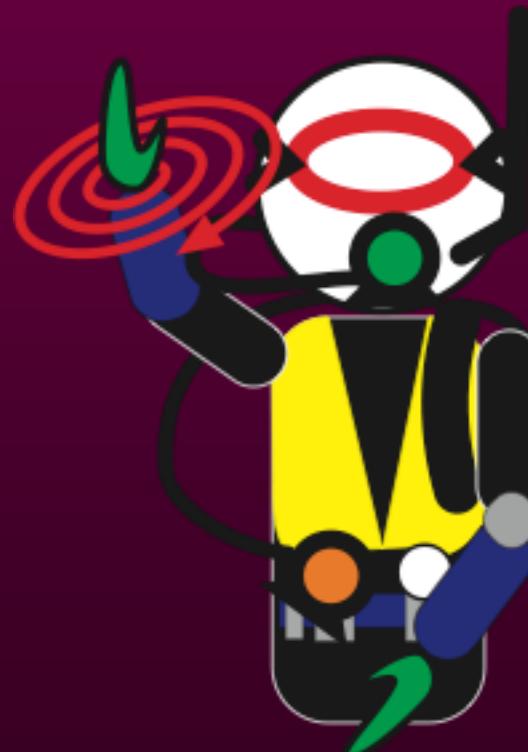
Mareo

Calma - Flotar

Barco

Presión

Más despacio



**SEÑAL  
CMAS**



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Atar

Mareo

Calma - Flotar

Barco

Presión

Más despacio





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Atar

Mareo

Calma - Flotar

Barco

Presión

Más despacio





# Lección II



Confederación Mundial de Actividades Subacuáticas

## Señales de buceo

Atar

Mareo

Calma - Flotar

Barco

Presión

Más despacio



## Señales de buceo

Atar

Mareo

Calma - Flotar

Barco

Presión

Más despacio





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Stop

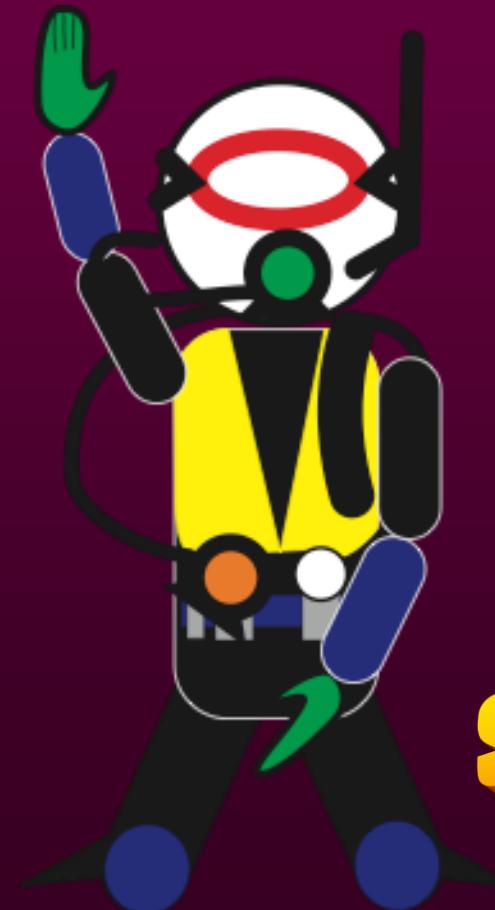
Todo el  
mundo aquí

Mira (allí-aquí)

Yo

Tú

Dirección





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Stop

Todo el  
mundo aquí

Mira (allí-aquí)

Yo

Tú

Dirección





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Stop

Todo el  
mundo aquí

Mira (allí-aquí)

Yo

Tú

Dirección





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Stop

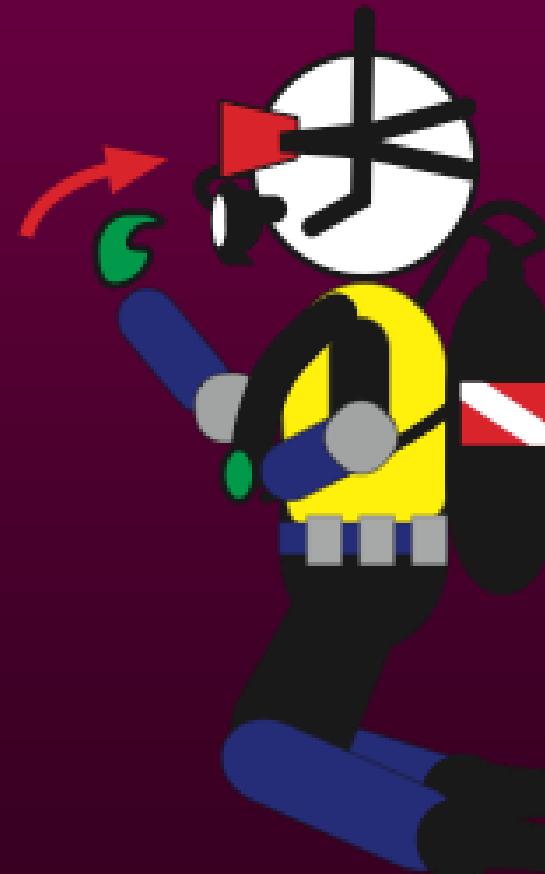
Todo el  
mundo aquí

Mira (allí-aquí)

Yo

Tú

Dirección



**SEÑAL  
CMAS**



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Stop

Todo el  
mundo aquí

Mira (allí-aquí)

Yo

Tú

Dirección



**SEÑAL  
CMAS**



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Stop

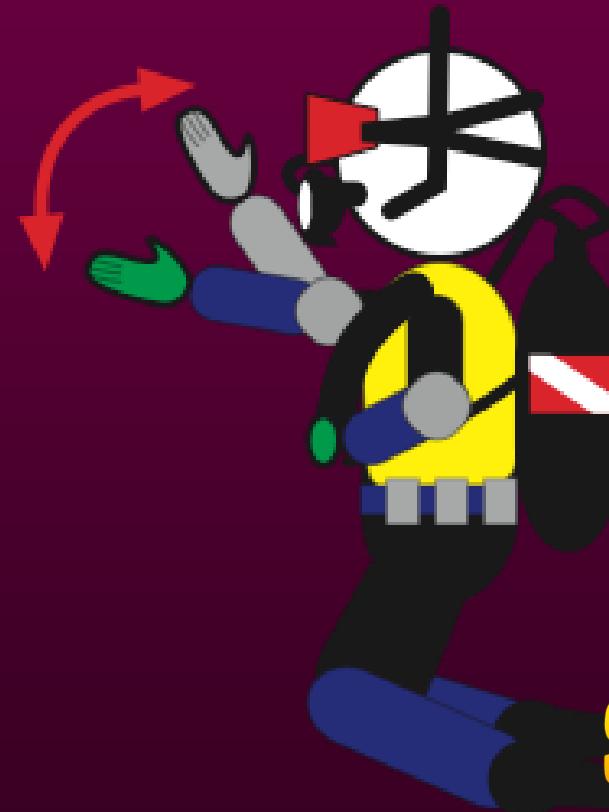
Todo el  
mundo aquí

Mira (allí-aquí)

Yo

Tú

Dirección



**SEÑAL  
CMAS**



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

No  
Calambres  
50 Atm  
1/2 Presión  
Sin aire  
Resp.compartida



**SEÑAL  
CMAS**



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

No  
Calambres  
50 Atm  
1/2 Presión  
Sin aire  
Resp.compartida





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

No  
Calambres  
50 Atm  
1/2 Presión  
Sin aire  
Resp.compartida





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

No  
Calambres  
50 Atm  
1/2 Presión  
Sin aire  
Resp.compartida





## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

No  
Calambres  
50 Atm  
1/2 Presión  
Sin aire  
Resp.compartida



**SEÑAL  
CMAS**



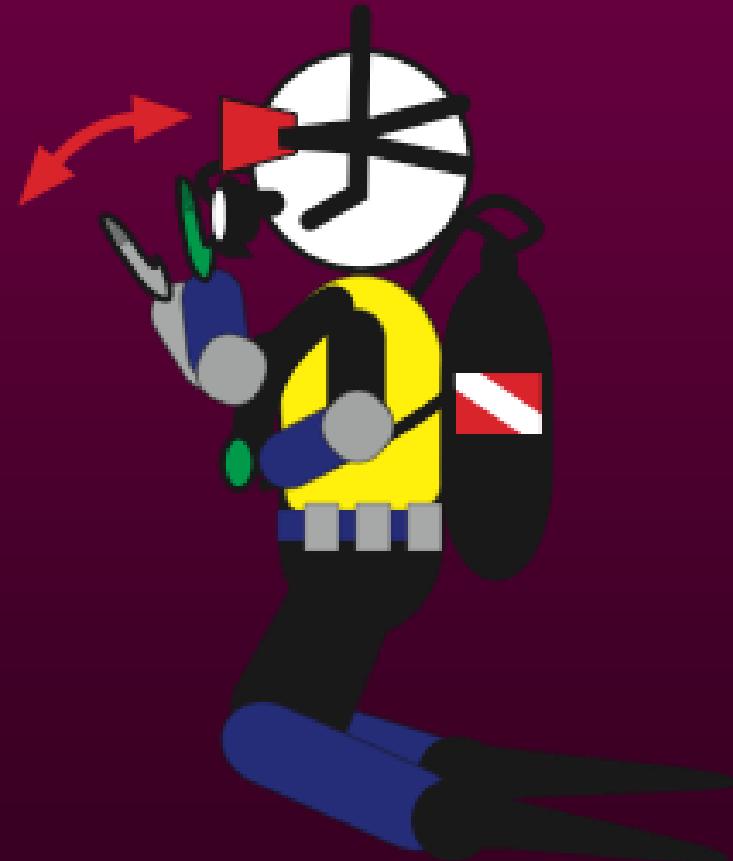
## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

No  
Calambres  
50 Atm  
1/2 Presión  
Sin aire  
Resp.compartida





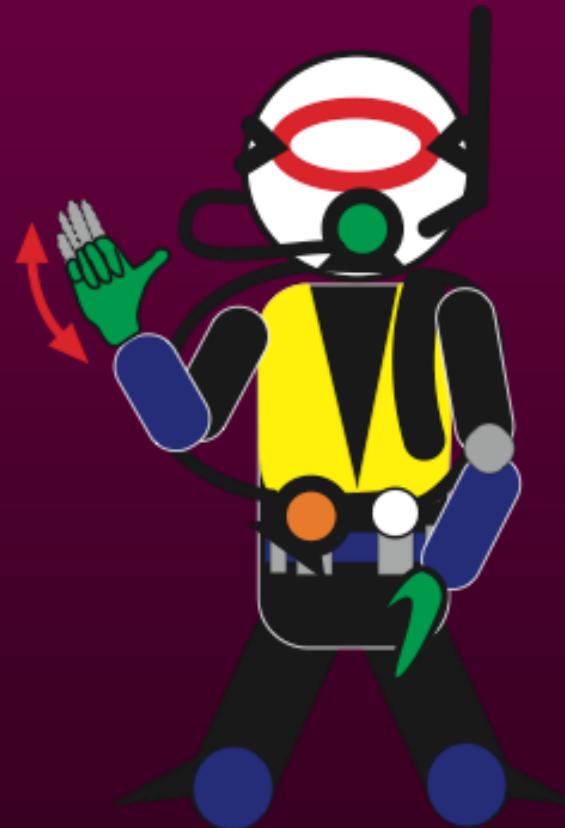
## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Hincar  
Para



**SEÑAL  
CMAS**



## Lección II



Confederación Mundial de Actividades Subacuáticas

### Señales de buceo

Hincar  
para



**SEÑAL  
CMAS**



## Lección II



Confederazione Mondiale Attività Subacquee





## Lesson III



World Underwater Federation

# Lesson 3



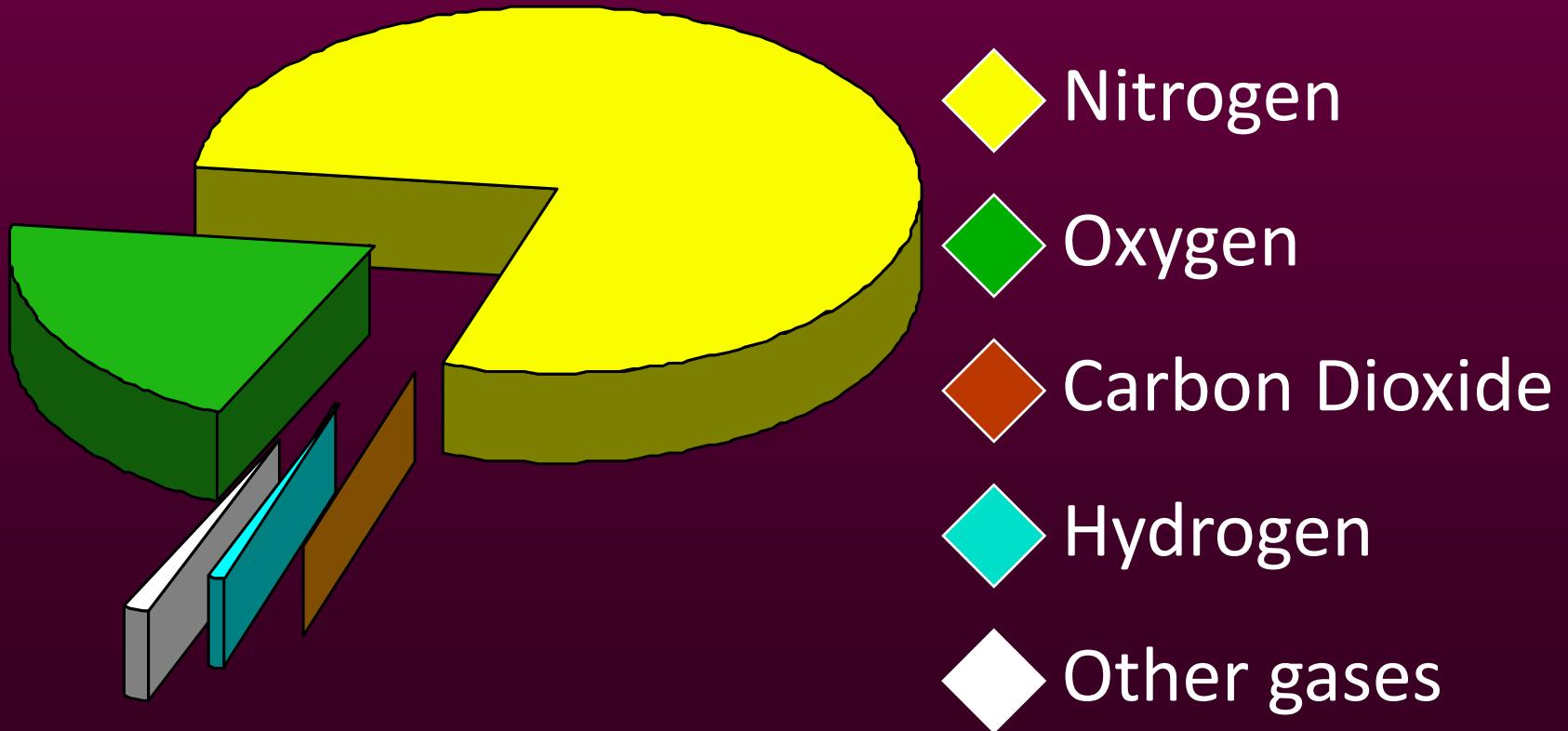
## Lesson III



World Underwater Federation

# Air composition

### Air composition





## Lesson III



World Underwater Federation

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# Physics principles



## Lesson III



World Underwater Federation

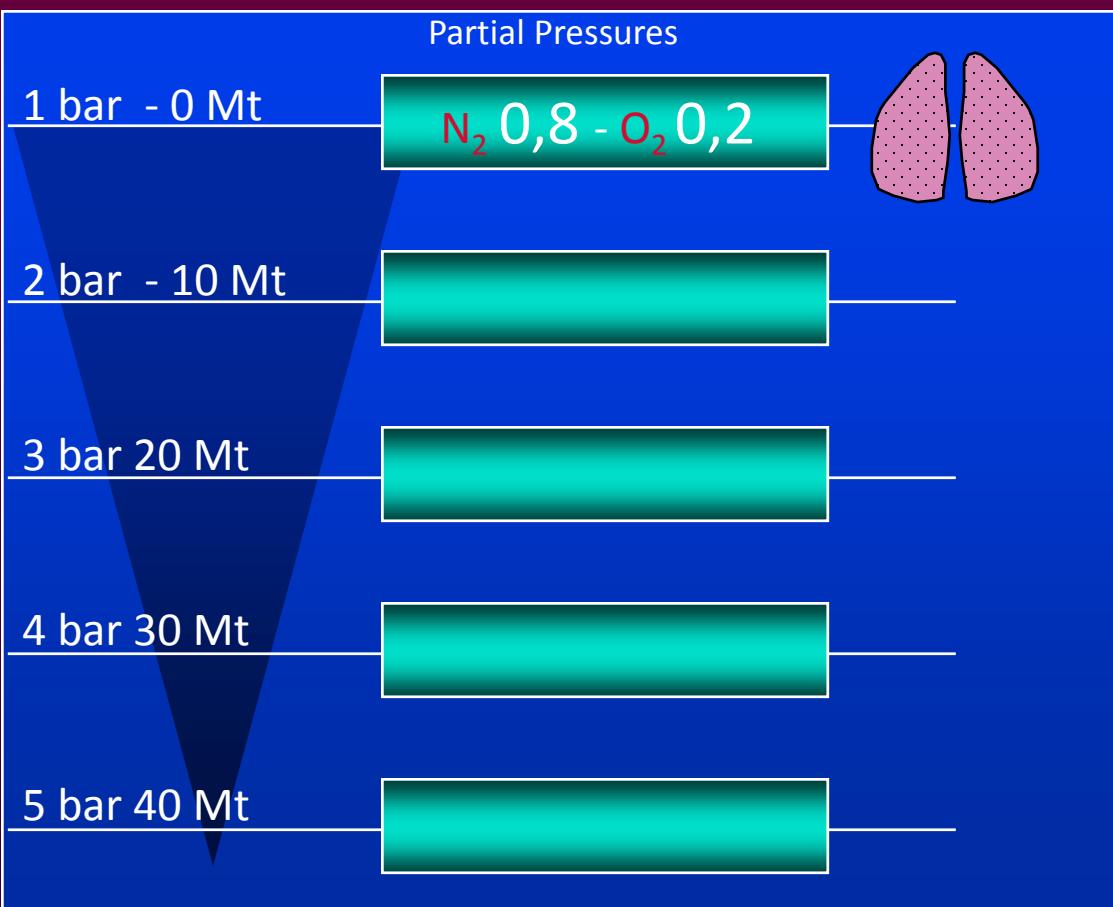
# Dalton

The total pressure exerted by a mixture of gases is equal to the sum of the partial pressures of the gases that compose the mixture

	%	PP	
Nitrogen	78	0,78	
Oxygen	20	0,20	
Carbon Dioxide	0,04	0,0004	
Hydrogen	1	0,01	
Other gases	1	0,01	

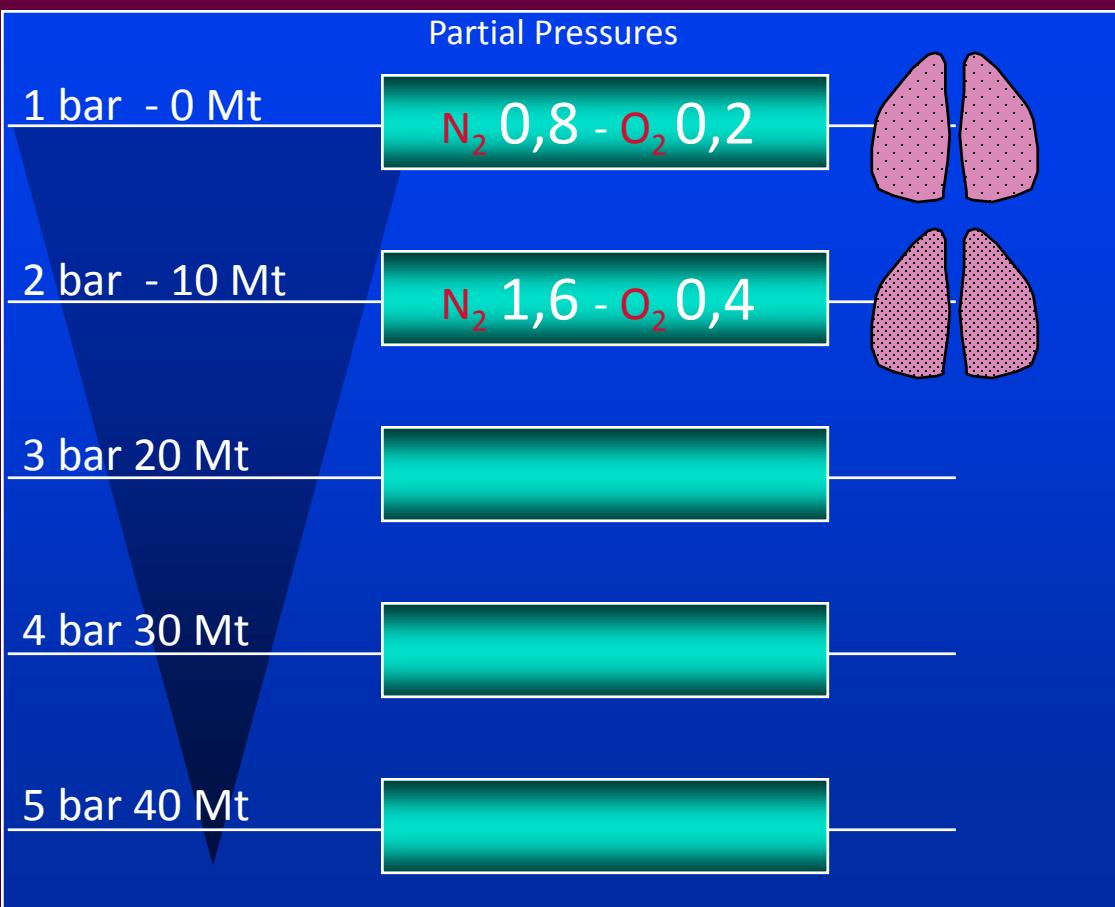
↑ AT SEA LEVEL  
↓ Tot 1 bar

# Dalton



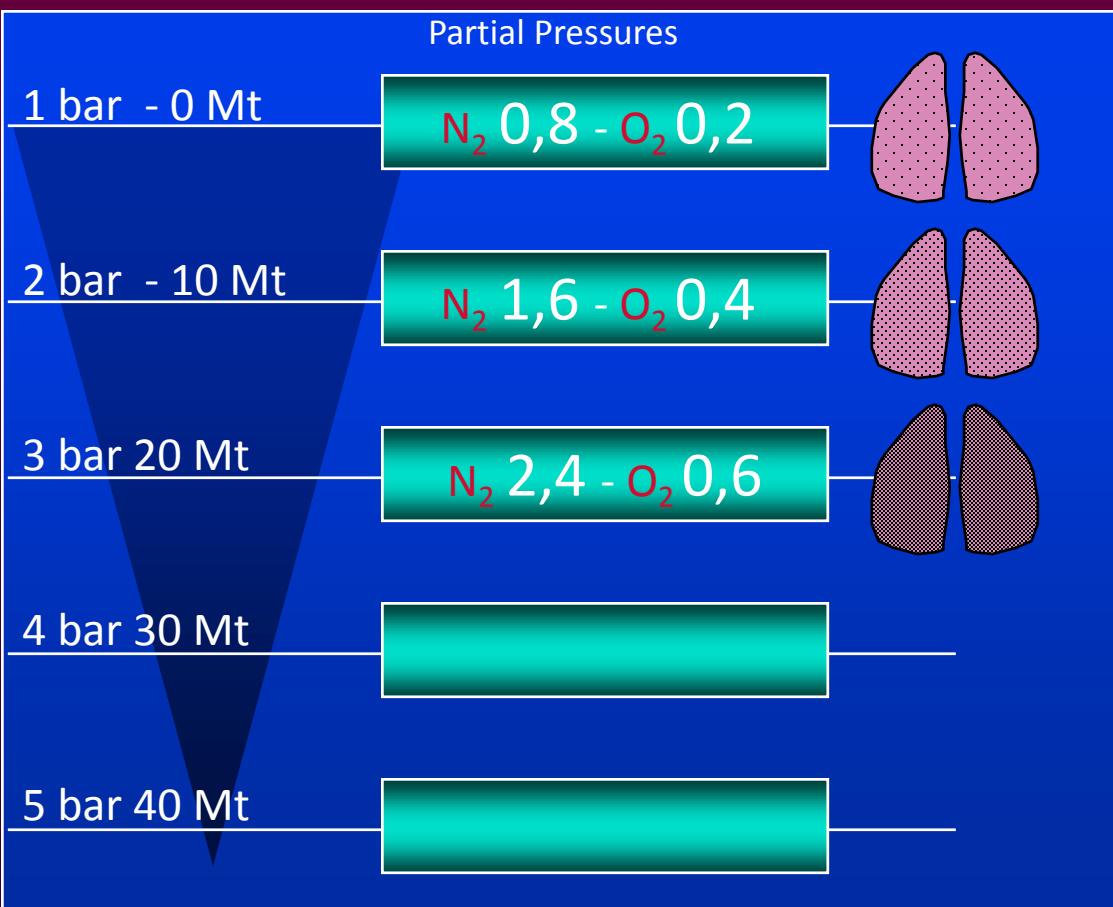
The total pressure exerted by a mixture of gases is equal to the sum of the partial pressures of the gases that compose the mixture

# Dalton



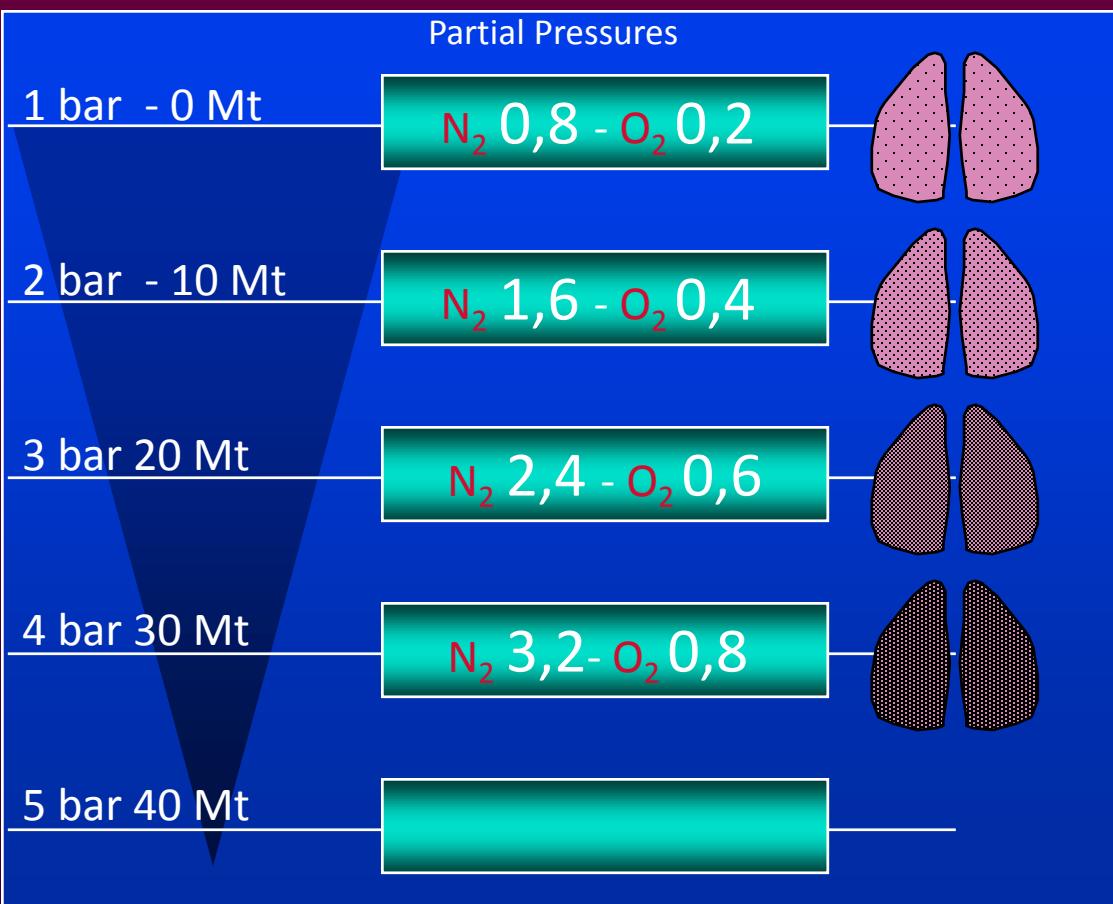
The total pressure exerted by a mixture of gases is equal to the sum of the partial pressures of the gases that compose the mixture

# Dalton



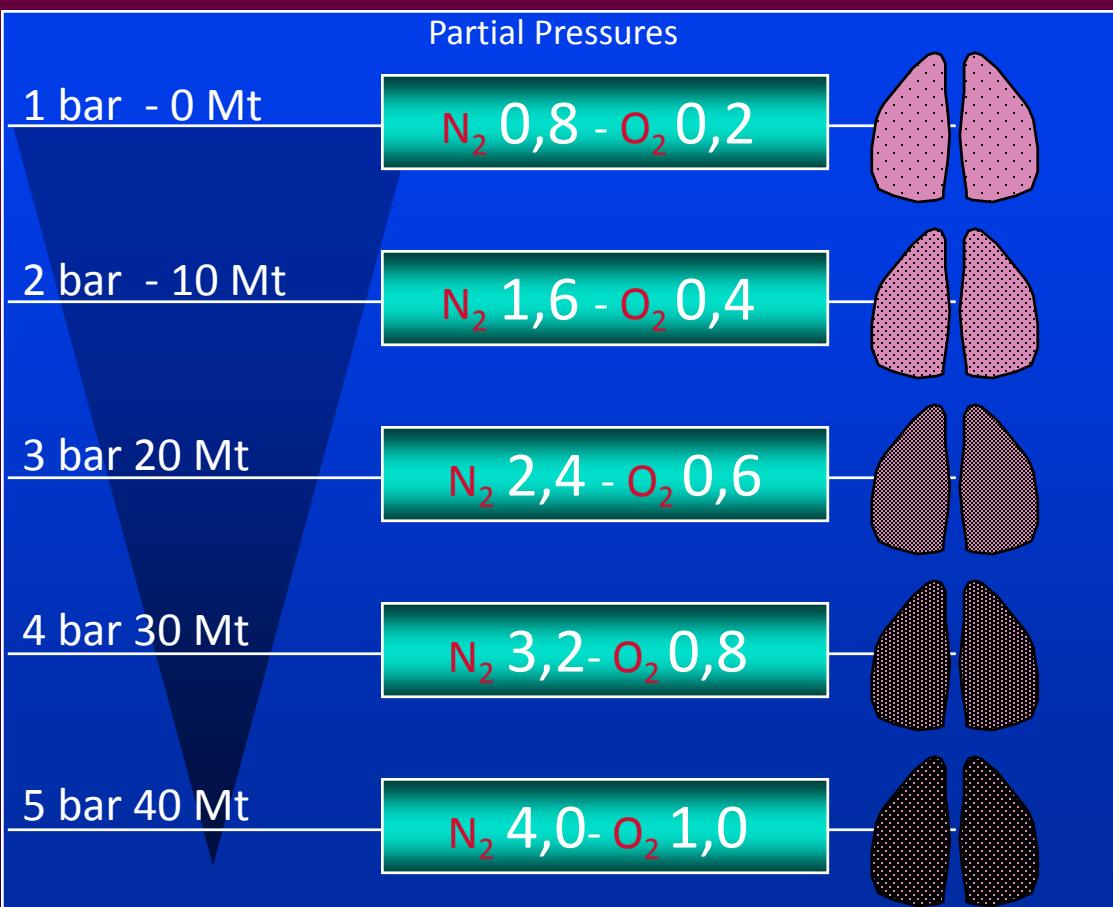
The total pressure exerted by a mixture of gases is equal to the sum of the partial pressures of the gases that compose the mixture

# Dalton



The total pressure exerted by a mixture of gases is equal to the sum of the partial pressures of the gases that compose the mixture

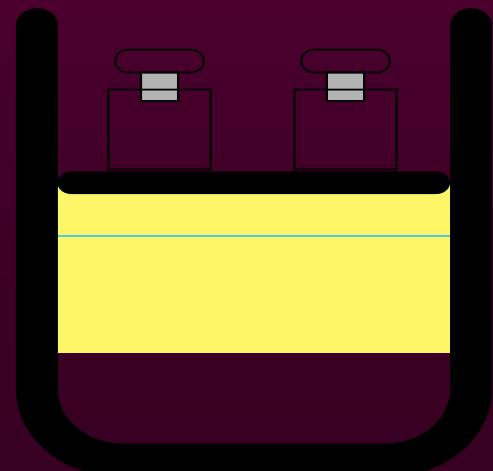
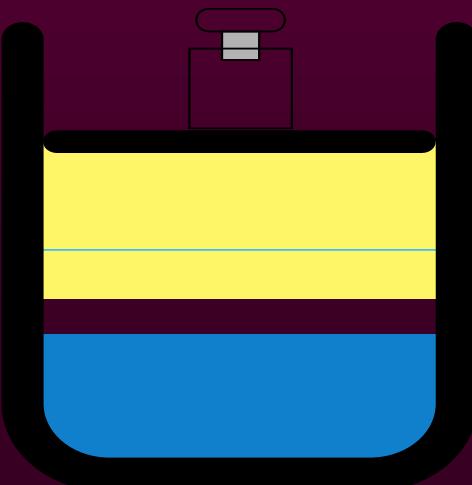
# Dalton



The total pressure exerted by a mixture of gases is equal to the sum of the partial pressures of the gases that compose the mixture

# Henry

The amount of a gas that will dissolve in a liquid is directly proportional at the pressure of the gas that is in contact with the liquid





## Lesson III



World Underwater Federation

---

# Diving accidents

Effects of pressure

# Nitrogen Narcosis





## Lesson III



World Underwater Federation

# Effects of pressure Decompression sickness

**HENRY'S  
LAW**

Higher  
Internal  
pressure

+

Gas in  
solution



## Lesson III



World Underwater Federation

# Effects of pressure Decompression sickness

**HENRY'S  
LAW**

**GAS OUT**

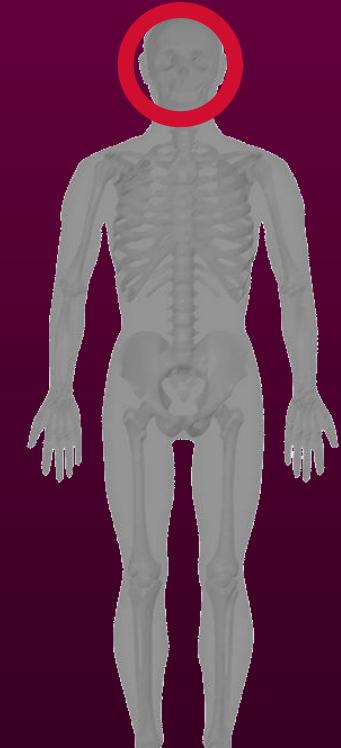
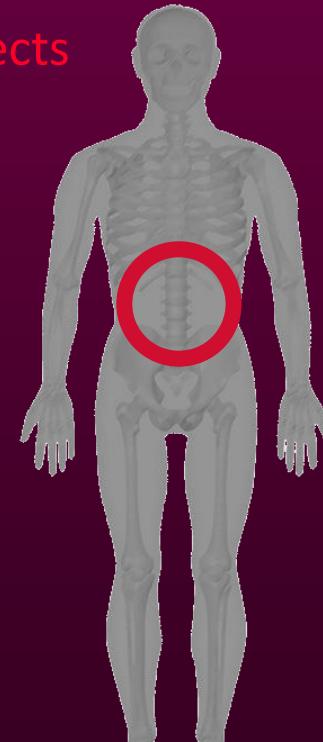
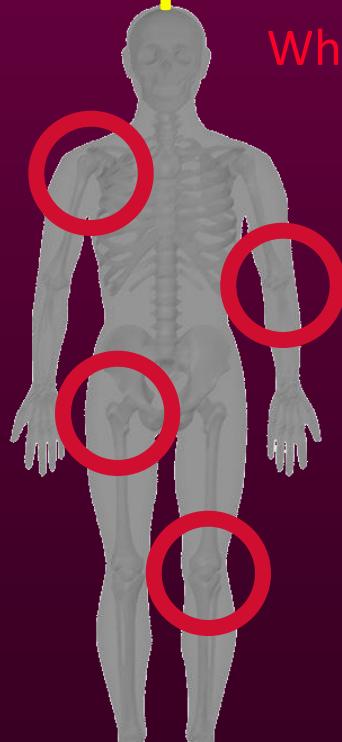
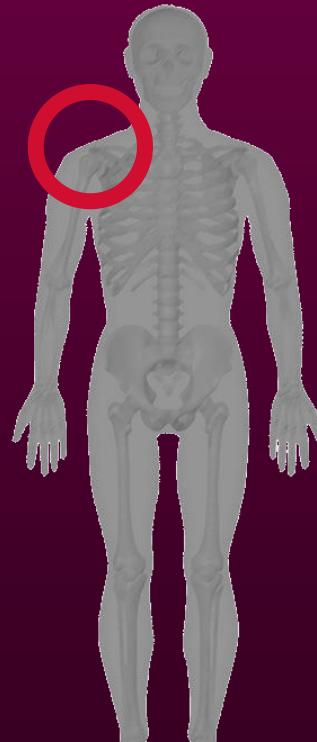
Internal  
pressure

=

External  
pressure

## Effects of pressure Decompression sickness

Which affects





## Lesson III



World Underwater Federation

# Dive tables



# Lesson III

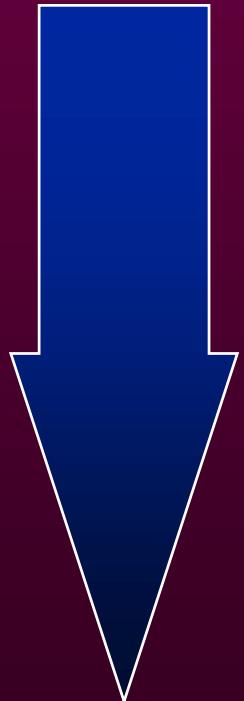


World Underwater Federation

## Dive tables Terminology

### Descent rate

The speed at which  
the diver descends  
A maximum rate of  
20 mt/min is allowed





# Lesson III



World Underwater Federation

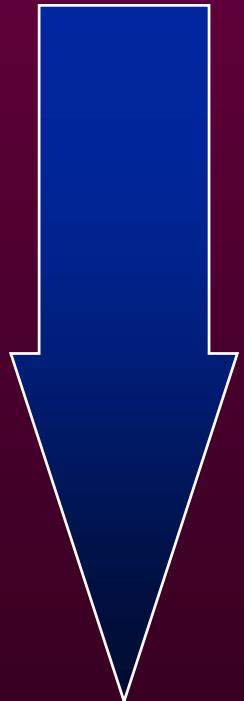
## Dive tables Terminology

### Max depth

The deepest depth reached

                  during the dive

Measured in metres





# Lesson III

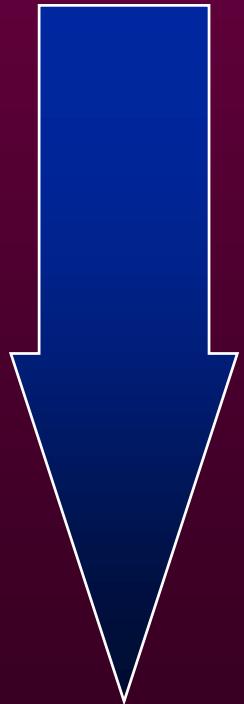


World Underwater Federation

## Dive tables Terminology

### Dive time

The time elapsed from leaving  
the surface to the beginning  
of the ascent





# Lesson III



World Underwater Federation

## Dive tables Terminology

### Ascent rate

The speed at which the diver ascent through the water.

The maximum permissible rate  
Is 10 mt/min





# Lesson III



World Underwater Federation

## Dive tables Terminology Safety stop

3 Mt  
-  
3 Min





# Lesson III



World Underwater Federation

## Dive tables Terminology

Dive letter group

The letter describing the diver's  
Tissue saturation state  
on surface after a dive



# Lesson III



World Underwater Federation

## Dive tables Terminology

### Surface interval time

The time elapsed from leaving  
the water at the end of one dive  
to leaving the surface at beginning  
of the following dive



# Lesson III



World Underwater Federation

## Dive tables Terminology

**Dive without decompression**

A dive for which the tables indicate no need  
for an in-water decompression stop.



# Lesson III



World Underwater Federation

## Dive tables Terminology

Dive with decompression

A dive for which the tables indicate  
the need for an in-water stop  
or stops to be carried out



# Lesson III



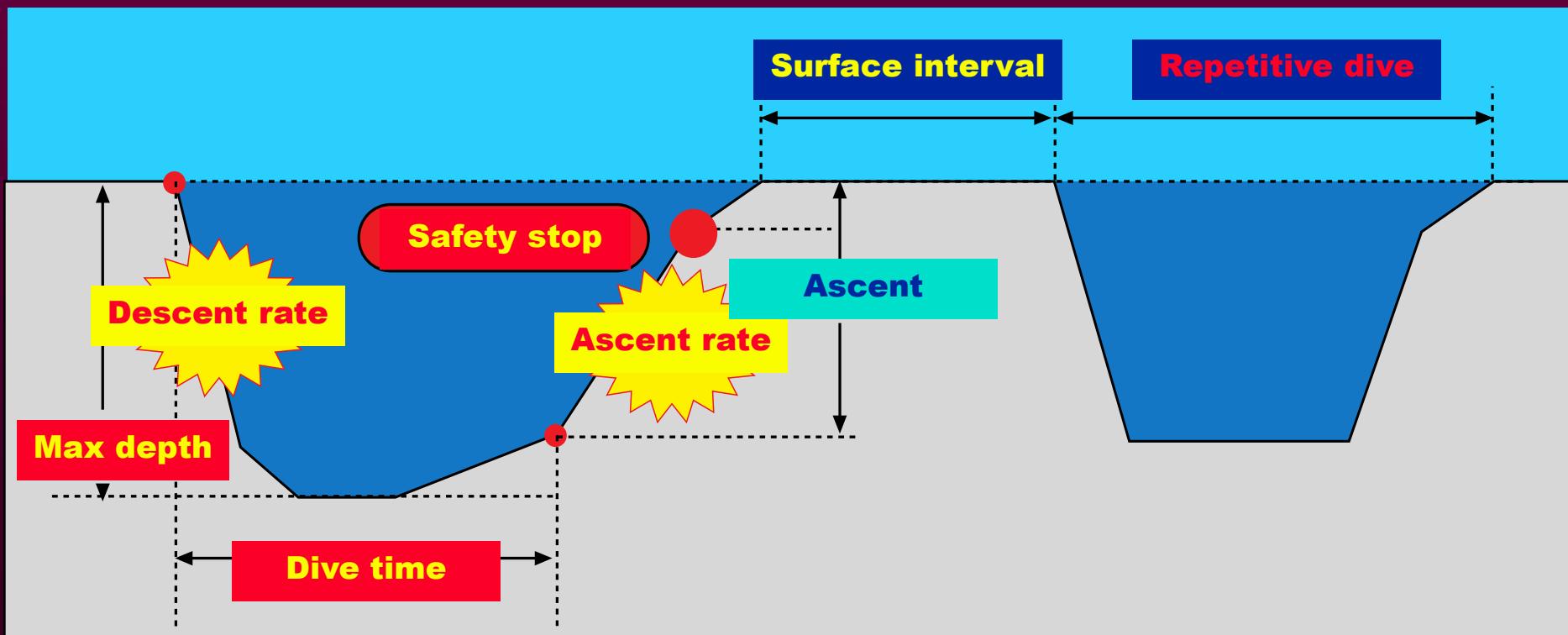
World Underwater Federation

## Dive tables Terminology

### Repetitive dive

This term means a dive performed after 10 minutes and in the following 12 hours. Any new dive within 10 minutes must be considered a follow up of a previous dive

## Dive tables Terminology



# Dive tables Tables

DIVE LETTER GROUP	3	6	9	12	15	18	21	24	27	30	33	36	42	45	DEPTH (metres)	
	4,5	7,5	10,5	15	5	5									0:10 12:00	
A	60	35	25	20	15	5	5								A	
B	120	70	50	35	30	15	15	10	10	5	5	5	5	5	B	
C	210	110	75	55	45	25	25	15	15	10	10	7	5	5	C	
D	300	160	100	75	60	40	30	25	20	15	15	12	10	10	D	
E	225	135	100	75	50	40	30	25	20	20	15	15	13	12	E	
F	350	180	125	95	60	50	40	30	30	25	20	20	15	15	F	
G		240	160	120	80	70	50	40	35	30	25	22	20		G	
H		325	195	145	100	80	60	50	40	35	30	25			H	
I			245	170	120	100	70	55	45	40					I	
J			315	205	140	110	80	60	50						J	
K			250	160	130	90									K	
L			310	190	150	100									L	
M				220	170										M	
N					270	200									N	
O						310									O	
NEW DIVE LETTER GROUP																
BASED ON <b>U.S. NAVY</b> DIVE TABLES				REPETITIVE DIVE DEPTH (metres)		O	N	M	L	K	J	I	H	G	F	
SAFETY STOP 3mt/3min						12	241	213	187	161	138	116	101	87	73	
						15	160	142	124	111	99	87	76	66	56	
						18	117	107	97	88	79	70	61	52	44	
						21	96	87	80	72	64	57	50	43	37	
						24	80	73	68	61	54	48	43	38	32	
						27	70	64	58	53	47	43	38	33	29	
						30	62	57	52	48	43	38	34	30	26	
						33	55	51	47	42	38	34	31	27	24	
						36	50	46	43	39	35	32	28	25	21	
						39	44	40	38	35	31	28	25	22	19	

## Dive tables Tables

**Depth**

	6	9	12	15	18	21	24	27	30	33	36	39	42	45	DEPTH (metres)
B	120	70	50	35	30	15	15	10	10	5	5	5	5	5	A
C	210	110	75	55	45	25	25	15	15	10	10	7	5	5	B
D	300	160	100	75	60	40	30	25	20	15	15	12	10	10	C
E	350	100	75	50	40	30	25	20	20	15	15	13	12	10	D
F	380	125	95	60	50	40	30	30	25	20	20	15	15	15	E
G	240	160	120	80	70	50	40	35	30	25	22	20	20	20	F
H	325	195	145	100	80	60	50	40	35	30	25	25	25	25	G
I	245	170	120	100	70	55	45	40	30	20	15	10	10	10	H
J															I
K															J
L															K
M															L
N															M
O															N

**Dive letter group**

M	220	170
N	270	200
O	310	

NEW DIVE LETTER GROUP

BASED ON  
U.S. NAVY  
DIVE TABLES

SAFETY STOP  
3mt/3min

REPETITIVE DIVE DEPTH  
(metres)

12	241	213	187	161	138	116	101	87	73						
15	160	142	124	111	99	87	76	66	56	47					
18	117	107	97	88	79	70	61	52	44	36					
21	96	87	80	72	64	57	50	43	37	31	26	22	18	15	
24	80	73	68	61	54	48	43	38	32	28	23	20	17	14	
27	70	64	58	53	47	43	38	33	29	24	20	17	14	11	
30	62	57	52	48	43	38	34	30	26	22	18	15	12	9	
33	55	51	47	42	38	34	31	27	24	20	17	14	11	8	
36	50	46	43	39	35	32	28	25	21	18	15	12	9	6	
39	44	40	38	35	31	28	25	22	19	16	13	10	7	4	

**Repetitive dive  
letter group**

**Residual  
nitrogen time**





## Lesson III



World Underwater Federation

# Examples



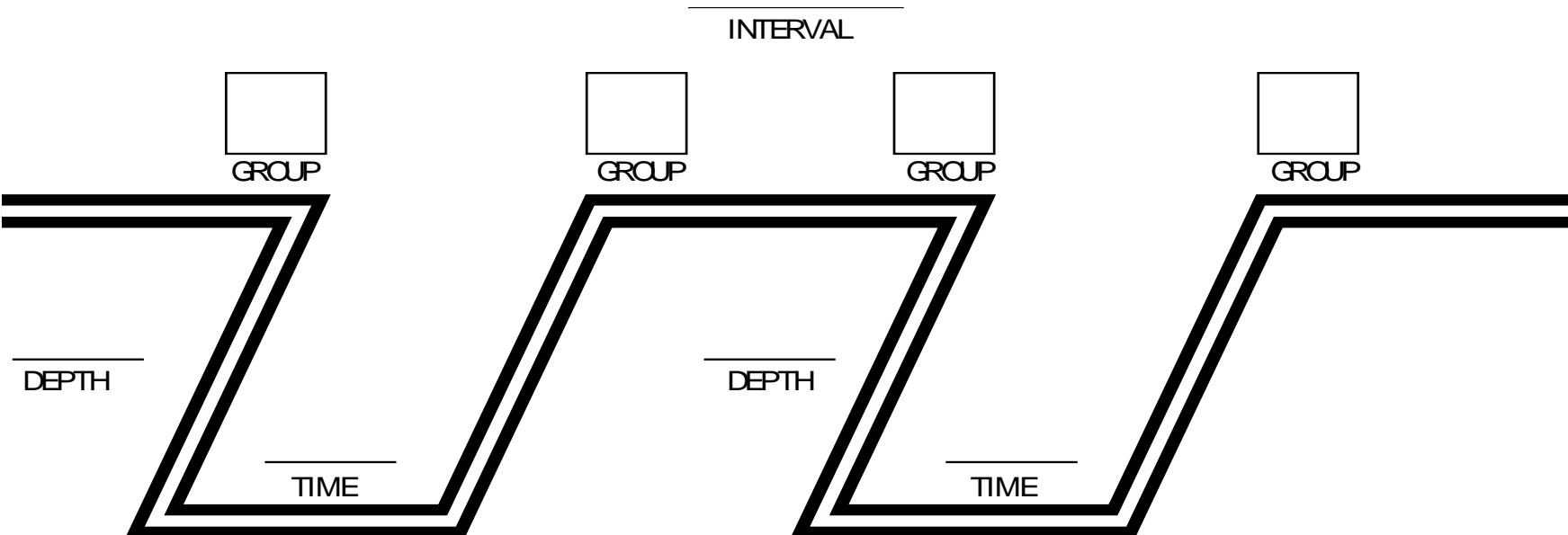
# Lesson III



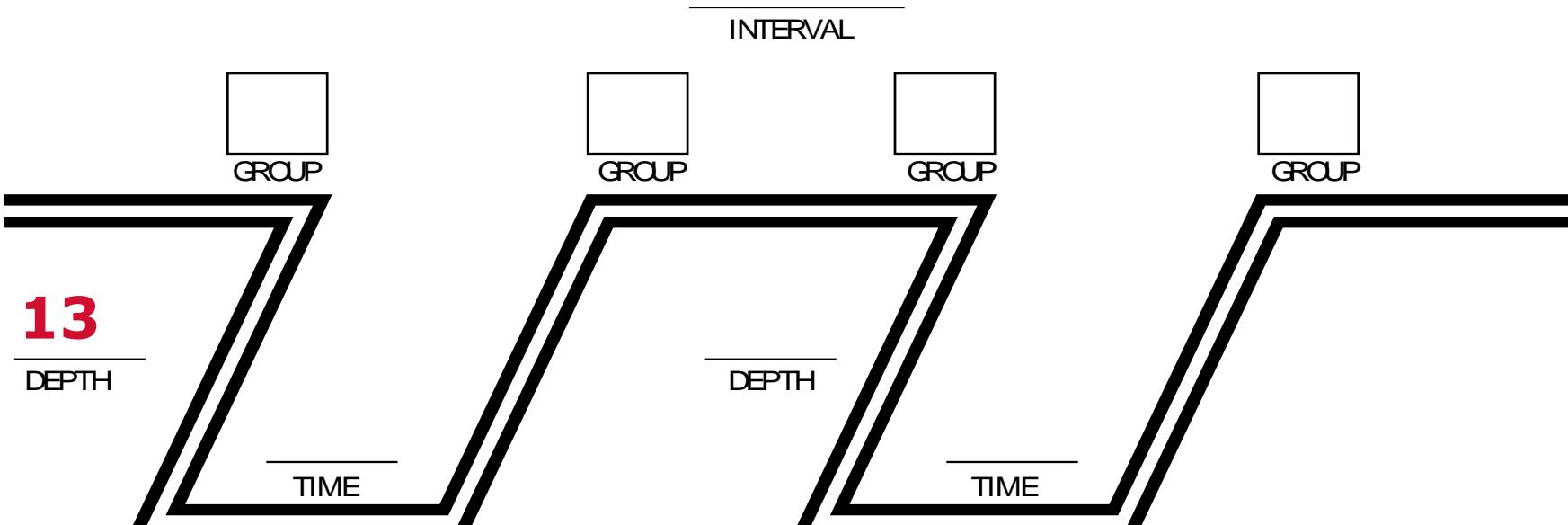
World Underwater Federation

Examples  
End of dive letter group

### Examples



### Examples



Max depth

13 mt



# Lesson III

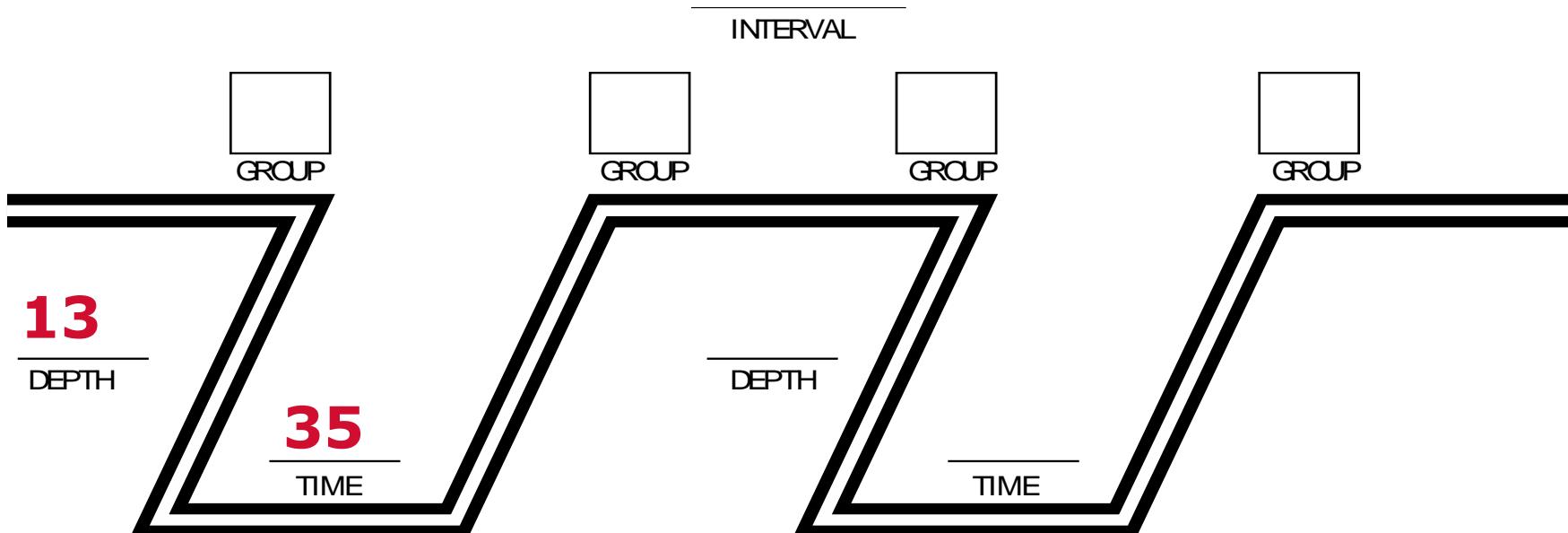


World Underwater Federation

## Examples

2	18		24		30		36		42	
	<b>15</b>	21		27		33		39		45
5										
15	10	10	5	5	5	5				
25	15	15	10	10	10	7	5	5	5	5
30	25	20	15	15	12	10	10	10	8	7
40	30	25	20	20	15	15	13	12	10	10
50	40	30	30	25	20	20	15	15		F
70	50	40	35	30	25	22	20		G	0:10 0:40 1:10 1:40

### Examples



Max depth

13 mt

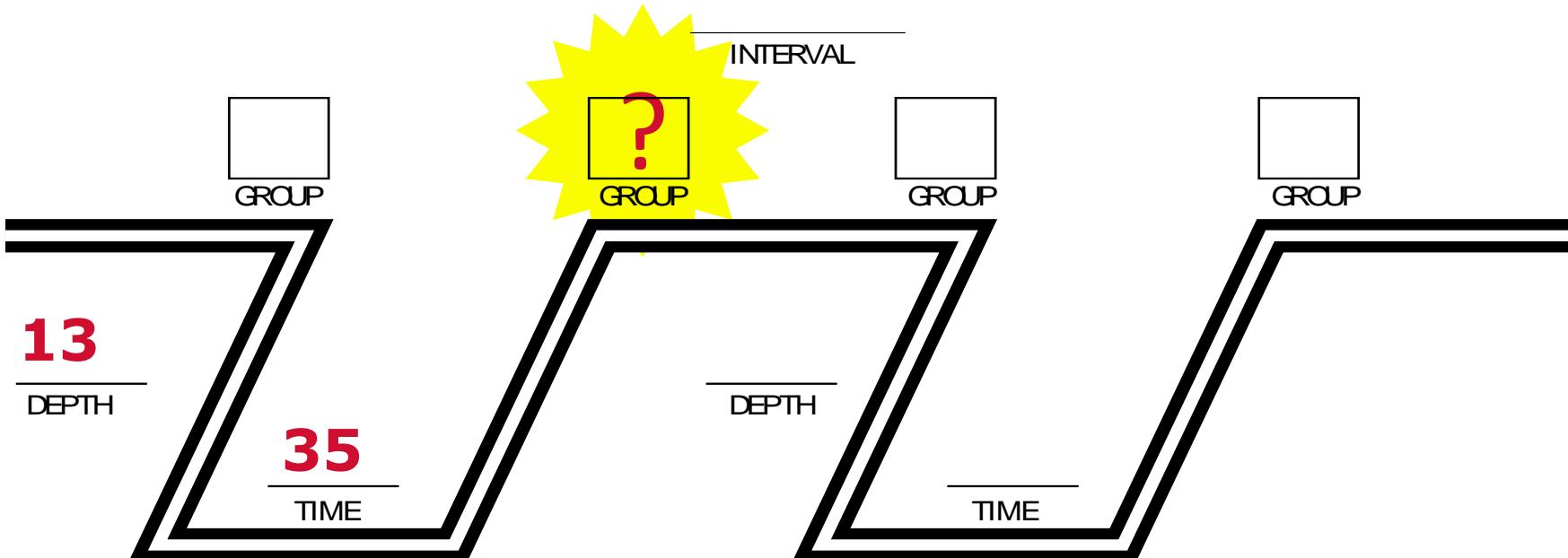
Time

35 Min

### Examples

2	15	18		24		30		36		42	
1	10	10	5	5	5	5					
2	15	15	10	10	10	7	5	5	5	5	
3	25	20	15	15	12	10	10	10	8	7	
4	25	20	20	15	15	13	12	10	10		
5	40	20	30	25	20	20	15	15		F	0:00
7	40	35	30	25	22	20			G	0:10 0:40	1:00

### Examples



Max depth

13 mt

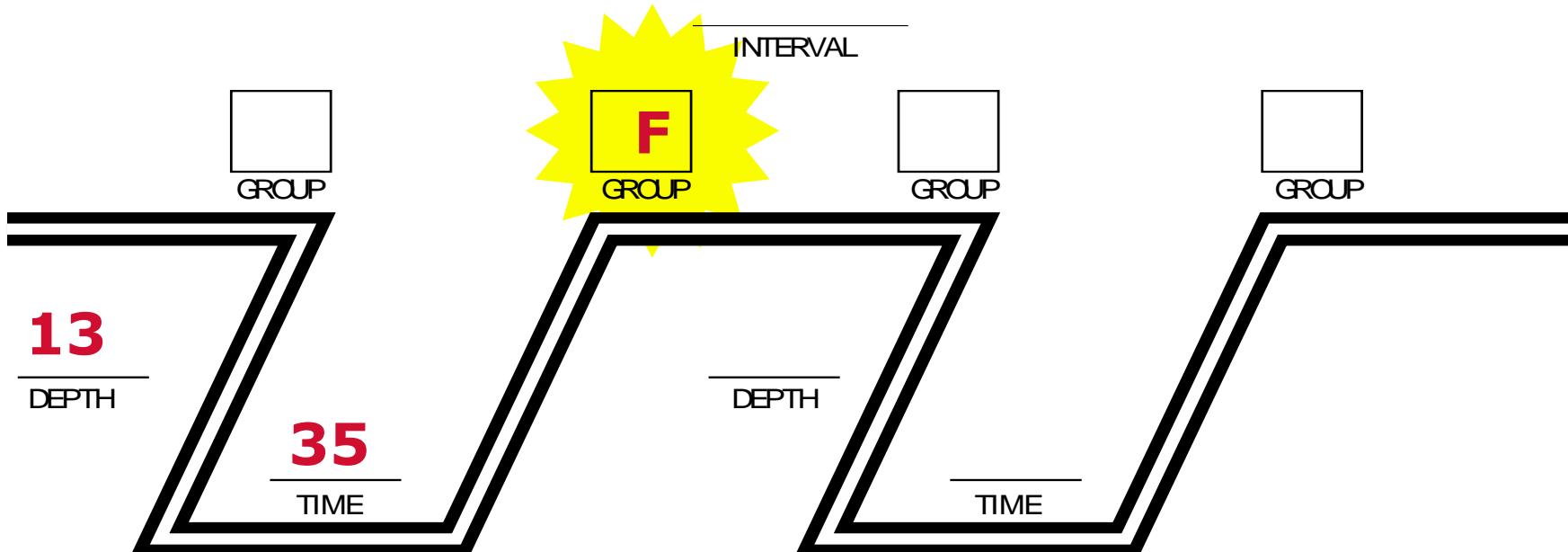
Time

35 Min

### Examples

2	15	18		24		30		36		42	
1	10	10	5	5	5	5					
2	15	15	10	10	10	7	5	5	5	5	
3	25	20	15	15	12	10	10	10	8	7	
4	25	20	20	15	15	12	12	12	10		
	40	20	30	25	20	20	15	15		F	
	40	35	50	25	22	20			G		

### Examples



Max depth

13 mt

Time

35 Min



# Lesson III

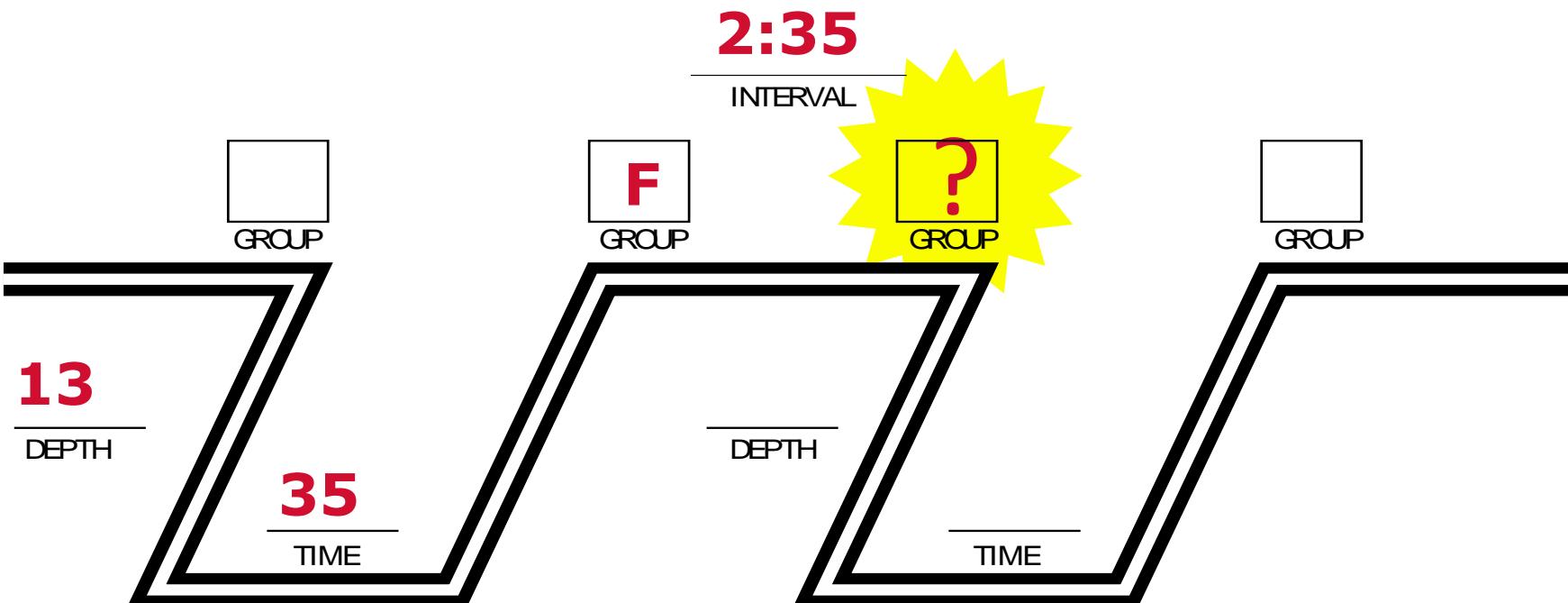


World Underwater Federation

Examples

New dive letter group  
After surface interval

### Examples



Surface interval

2 hours : 35 minutes

### Examples

	33	39	45							(metres)
					A					0:10 12:00
5					B					0:10 2:11 2:10 12:00
7	5	5	5	5	C					0:10 1:40 2:50 1:39 2:49 12:00
10	10	10	8	7	D	0:10 1:09	1:10 2:38	2:39 5:48	5:49 12:00	
15	13	12	10			0:10 0:54	0:55 1:57	1:58 3:32	3:23 6:33 6:32 12:00	
20	15	15			F	0:10 0:45 1:10 1:29	0:46 2:20 1:30 2:20	1:30 2:20 5:48 5:48	5:48 7:06 7:05 12:00	
22	20		G			1:15 1:15	1:59 2:58	2:58 4:48	2:58 7:35	7:36 12:00
25		H				0:10 0:36	0:37 1:06	1:07 1:41	1:42 2:23	3:21 3:20
	I					0:10 0:30	0:34 0:50	1:00 1:20	1:30 2:00	3:44 3:40
										5:13 8:22 5:14 12:00

# Lesson III



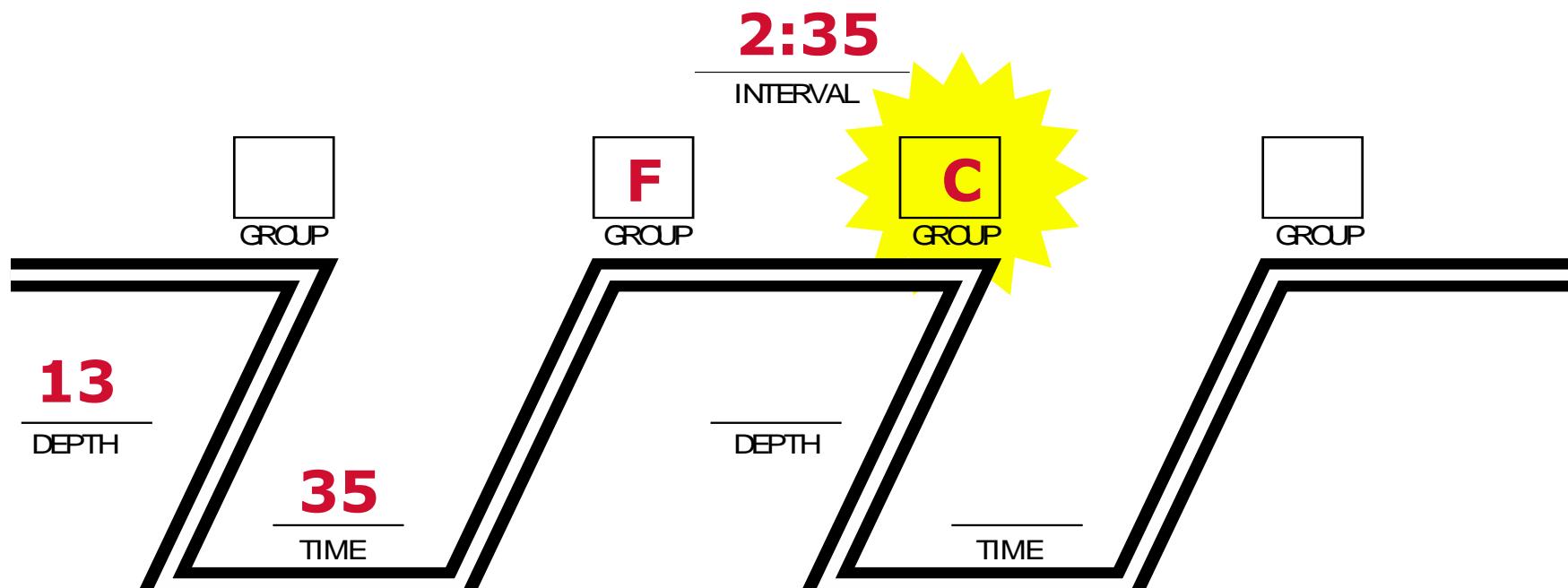
World Underwater Federation

## Examples

10	10	8	7		D	1:09	2:38	5:48	12:00
13	12	10	10	E	0:10	0:56	1:58	3:23	6:33
					0:54	1:57	3:22	6:32	12:00
15	15			F	0:10	0:46	1:30	2:29	3:58
					0:45	1:29	2:28	3:57	7:06
20			G		0:10	0:41	1:16	2:59	4:26
					0:40	1:15	1:59	2:58	7:36
		H			0:10	0:37	1:07	1:42	2:24
					0:36	1:06	1:41	2:23	3:20
I					0:10	0:34	1:00	1:30	2:03
					0:33	0:59	1:29	2:02	2:44
0:10	0:32	0:55	1:20	1:48	2:21	3:05	4:03	5:41	8:41
0:31	0:54	1:19	1:47	2:20	3:04	4:02	5:40	8:40	12:00
0:29	0:50	1:12	1:36	2:04	2:39	3:22	4:20	5:49	8:59
0:49	1:11	1:35	2:03	2:38	3:21	4:19	5:48	8:58	12:00
0:46	1:05	1:26	1:50	2:20	2:54	3:37	4:36	6:03	9:13
1:04	1:26	1:49	2:19	2:53	3:36	4:35	6:02	8:12	12:00
1:00	1:19	1:40	2:06	2:35	3:09	3:53	4:54	6:19	9:29
1:18	1:39	2:05	2:34	3:08	3:52	4:49	6:11	9:28	12:00
1:12	1:31	1:54	2:19	2:48	3:23	4:05	5:04	6:33	9:44
1:30	1:53	2:18	2:47	3:22	4:04	5:03	6:12	9:43	12:00
1:25	1:44	2:05	2:30	3:00	3:34	4:18	5:17	6:45	9:55
1:43	2:04	2:29	2:59	3:33	4:17	5:11	6:54	9:54	12:00
J	I	H	G	F	E	C	D	E	A

**C**

### Examples



Surface interval

2 hours : 35 minutes



# Lesson III



World Underwater Federation

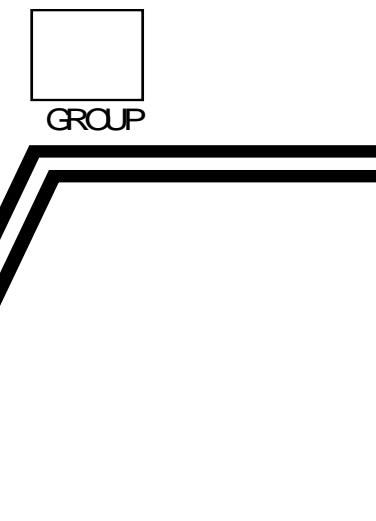
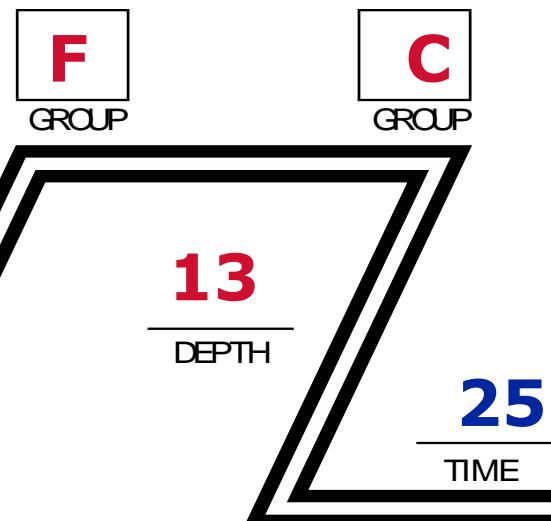
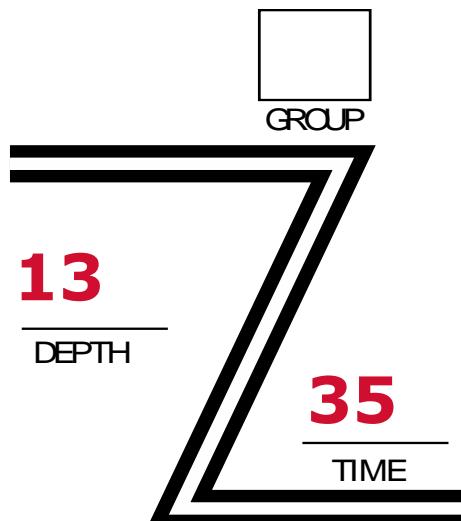
---

Examples  
Planning a  
repetitive dive

### Examples

**2:35**

INTERVAL



Max depth

13      mt

Repetitive dive time

25      Min



# Lesson III



World Underwater Federation

## Examples Remaining nitrogen time

## World Underwater Federation

### Examples

O	N	0:10 0:24	0:25 0:39	0:40 0:54	0:55 1:11	1:12 1:30	1:31 1:53	1:54 2:18	2:19 2:47	2:48 3:22	3:23 4:04	4:06 5:03	5:04 6:32	6:33 9:43	...
O	0:10 0:23	0:24 0:36	0:37 0:51	0:52 1:07	1:06 1:24	1:25 1:43	1:44 2:04	2:05 2:29	2:30 2:59	3:00 3:33	3:34 4:17	4:17 5:11	4:18 5:14	4:45 9:54	...
W	O	N	M	L	K	J	I	H	G	F	E	D	C	B	
15	160	142	124	111	99	87	76	66	56	47	38	30	37	17	
11	111	109	97	89	79	70	61	58	44	38	30	24	17	11	
21	96	87	80	72	64	57	50	43	37	31	26	20	15	9	
24	80	73	68	61	54	48	43	38	32	28	23	18	13	8	
27	70	64	58	53	47	43	38	33	29	24	20	16	11	7	
30	62	57	52	48	43	38	34	30	26	22	18	14	10	7	
33	55	51	47	42	38	34	31	27	24	20	16	13	10	6	
36	50	46	43	39	35	32	28	25	21	18	15	12	9	6	
39	44	40	38	35	31	28	25	22	19	16	13	11	8	6	



## Lesson III



World Underwater Federation

### Examples

Real dive time                                    25 +

Remaining nitrogen time                        21 =

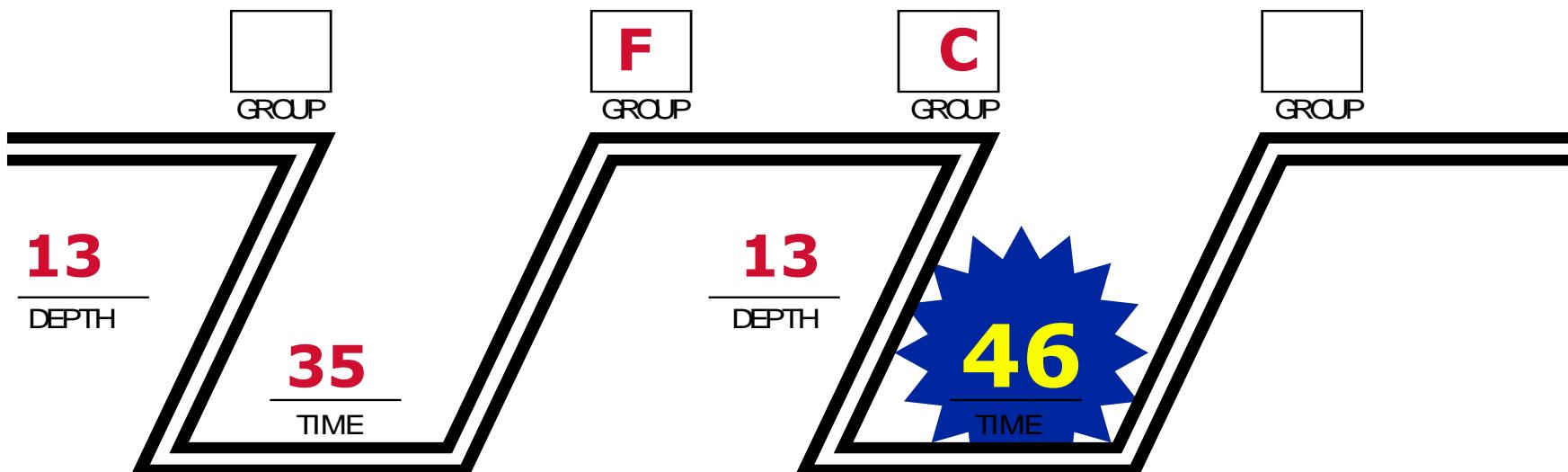
---

Total dive time                                    46

### Examples

**2:35**

INTERVAL



Max depth

13 mt

Repetitive dive time

25

Min



# Lesson III



World Underwater Federation

## Examples

IS IT OK ?

### Examples

2	15	18		24		30		36		42	
5		21			27		33		39		45
15	10	10	5	5	5	5					
25	15	15	10	10	10	7	5	5	5	5	40
30	25	20	15	15	12	10	10	10	8	7	
40	30	25	20	20	15	15	13	12	10	10	30
50		30	30	25	20	20	15	15		F	0:30
70	50		40	35	30	25	22	20		G	0:10 0:40 1:10



# Lesson III



World Underwater Federation

## Examples

OK



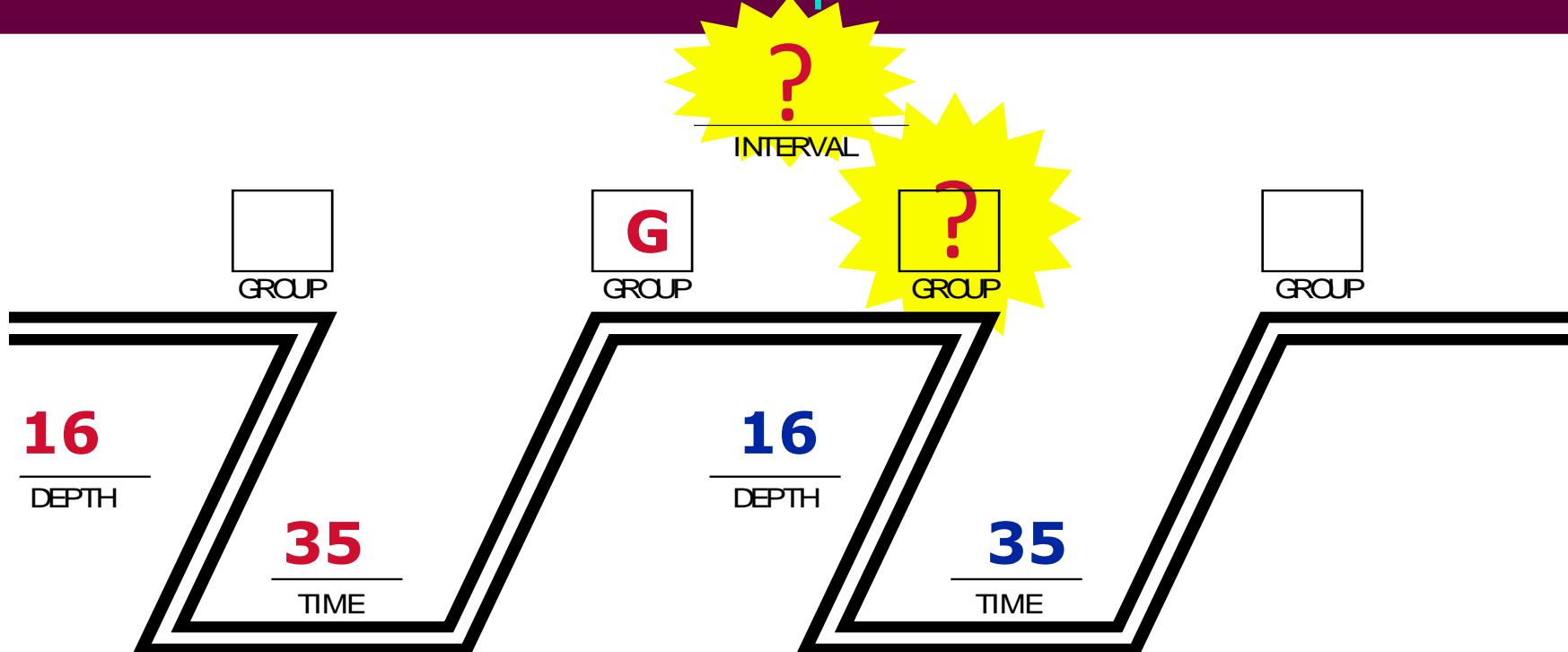
# Lesson III



World Underwater Federation

## Examples Planning the surface interval

### Examples





# Lesson III



World Underwater Federation

## Examples

Real dive time                            35      +

Remaining nitrogen time                ?      =

---

Max dive time at 16 mt                ?

## World Underwater Federation

### Examples

2	18	24	30	36	42				
15	21	27	33	39	45				
5									
15	10	10	5	5	5				
25	15	15	10	10	10	7	5	5	5
30	20	20	15	15	12	10	10	8	7
40	30	25	20	20	15	15	13	12	10
50	40	30	30	25	20	20	15	15	F
70	50	40	35	30	25	22	20	G	0:10 0:40
80	60	50	40	35	30	25	H	0:10 0:36	0:37 1:06
90	70		45	40		I	0:10 0:33	0:34 0:59	1:00 1:29
100			50		J	0:10 0:31	0:32 0:54	0:55 1:19	1:20 1:47



# Lesson III



World Underwater Federation

## Examples

Real dive time                                    35 +

Remaining nitrogen time                            ? =

---

Max dive time at 16 mt                            60



# Lesson III



# World Underwater Federation

# Examples

# Real dive time 35 +

Remaining nitrogen time < 25 =

**Max dive time at 16 mt**      60

## World Underwater Federation

### Examples

	<b>N</b>	0:10 0:24	0:25 0:39	0:40 0:54	0:55 1:11	1:12 1:30	1:31 1:53	1:54 2:18	2:19 2:47	2:48 3:22	3:23 4:04	4:06 5:03	5:04 6:03	6:33 9:43	·
<b>O</b>	0:10 0:23	0:24 0:36	0:37 0:51	0:52 1:07	1:06 1:24	1:25 1:43	1:44 2:04	2:05 2:29	2:30 2:59	3:00 3:33	3:34 4:17	4:18 5:16	5:17 6:44	6:45 9:54	·
	<b>O</b>	<b>N</b>	<b>M</b>	<b>L</b>	<b>K</b>	<b>J</b>	<b>I</b>	<b>H</b>	<b>G</b>	<b>F</b>	<b>E</b>	<b>D</b>	<b>C</b>	<b>B</b>	
12	241	213	187	161	138	116	101	87	73	61	49	37	25	17	
	160	142	124	111	99	87	76	66	56	47	38	29	21	13	
18	117	107	97	88	79	70	61	52	44	36	28	20	17	11	
	86	87	82	72	64	57	53	42	34	26	20	15	9		
24	80	73	68	61	54	48	43	38	32	28	23	18	13	8	
27	70	64	58	53	47	43	38	33	29	24	20	16	11	7	
30	62	57	52	48	43	38	34	30	26	22	18	14	10	7	
33	55	51	47	42	38	34	31	27	24	20	16	13	10	6	
36	50	46	43	39	35	32	28	25	21	18	15	12	9	6	
39	44	40	38	35	31	28	25	22	19	16	13	11	8	6	



# Lesson III



World Underwater Federation

## Examples

Real dive time                                    35 +

Remaining nitrogen time                            24 =

---

Max dive time at 16 mt                            59



# Lesson III



World Underwater Federation

## Examples

IS IT OK ?

## World Underwater Federation

### Examples

2	18	24	30	36	42	48	54	60	66	72	78	84	90	96
15		21	27	33	39									
5														
15	10	10	5	5	5									
25	15	15	10	10	10	7	5	5	5	5	5			
30	20	20	15	15	12	10	10	10	8	7				
40	30	25	20	20	15	15	13	12	10	10				
50	40	30	30	25	20	20	15	15			F	0:00	0:00	
70	50	40	35	30	25	22	20			G	0:10	0:00		
80	60	50	40	35	30	25		H	0:10	0:37	1:00	1:33	1:06	1:33
90	70		45	40			I	0:10	0:34	1:00	1:29	1:47	2:00	2:14
100			50				J	0:10	0:32	0:55	1:20	1:47	2:00	2:14
110			60	50				0:31	0:54	1:19	1:47	2:00	2:14	2:31



# Lesson III



World Underwater Federation

## Examples

OK

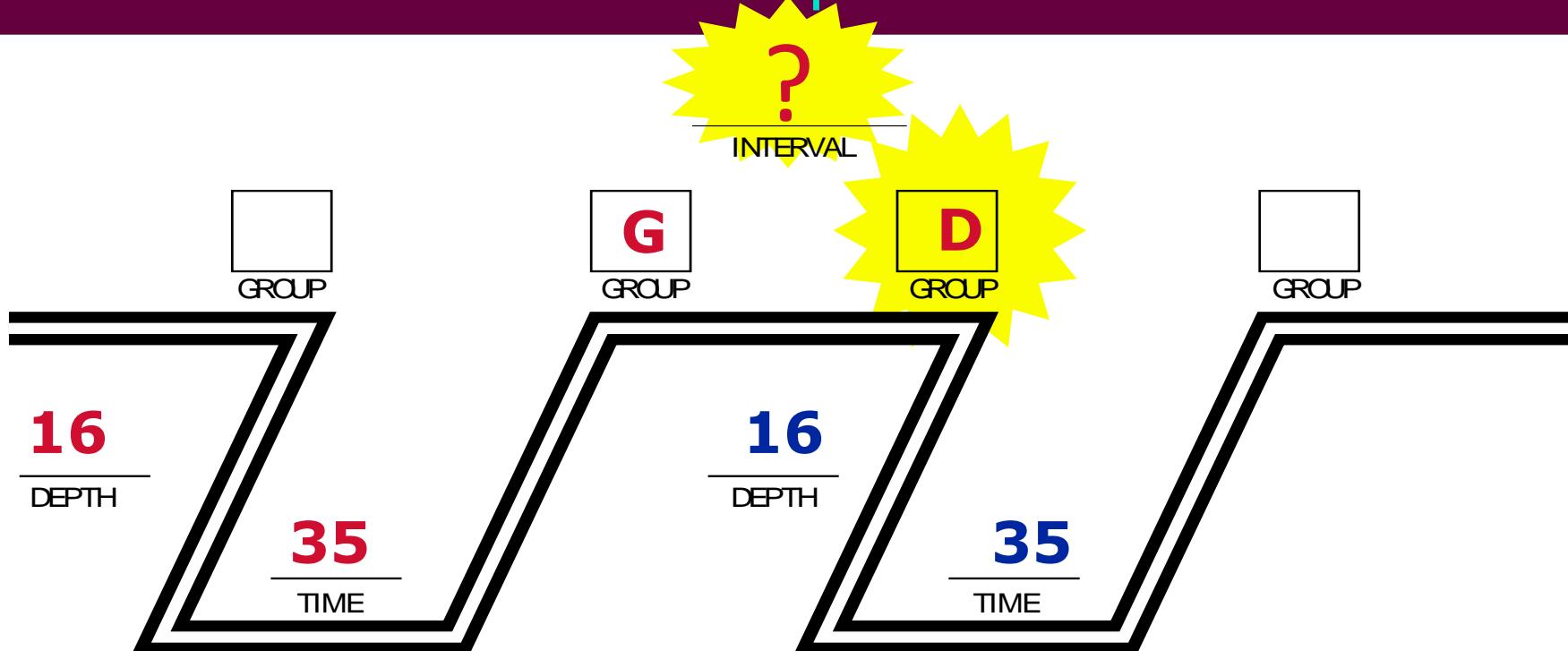
## World Underwater Federation

### Examples

	<b>N</b>	0:10 0:24	0:25 0:39	0:40 0:54	0:55 1:11	1:12 1:30	1:31 1:53	1:54 2:18	2:19 2:47	2:48 3:22	3:23 4:04	4:06 5:03	5:04 6:32	6:33 9:43	:
<b>O</b>	0:10 0:23	0:24 0:36	0:37 0:51	0:52 1:07	1:06 1:24	1:25 1:43	1:44 2:04	2:05 2:29	2:30 2:59	3:00 3:33	3:34 4:17	4:17 5:17	5:17 6:44	6:45 9:54	:
	<b>O</b>	<b>N</b>	<b>M</b>	<b>L</b>	<b>K</b>	<b>J</b>	<b>I</b>	<b>H</b>	<b>G</b>	<b>F</b>	<b>E</b>	<b>D</b>	<b>C</b>	<b>B</b>	
12	241	213	187	161	138	116	101	87	73	61	49	25	17		
	160	142	124	111	99	87	76	66	56	47	38	29	21	13	
18	117	107	97	88	79	70	61	52	44	36	28	17	11		
	96	87	82	72	64	57	50	42	34	26	19	10	15	9	
24	80	73	68	61	54	48	43	38	32	28	23	18	13	8	
27	70	64	58	53	47	43	38	33	29	24	20	16	11	7	
30	62	57	52	48	43	38	34	30	26	22	18	14	10	7	
33	55	51	47	42	38	34	31	27	24	20	16	13	10	6	
36	50	46	43	39	35	32	28	25	21	18	15	12	9	6	
39	44	40	38	35	31	28	25	22	19	16	13	11	8	6	

## World Underwater Federation

### Examples



## World Underwater Federation

### Examples

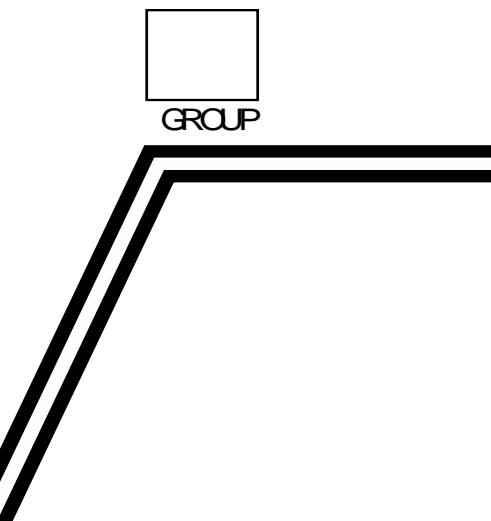
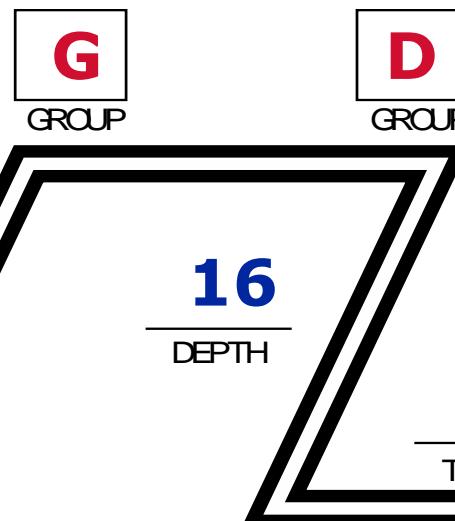
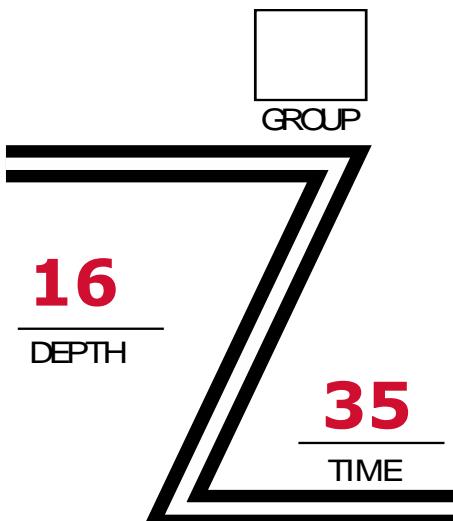
	33	39	45							(metres)
					A					0:10 12:00
5					B					0:10 2:11 2:10 12:00
7	5	5	5	5	C					0:10 1:40 2:50 1:39 2:49 12:00
10	10	10	8	7	D	0:10 1:09	1:10 2:38	2:39 5:48	5:49 12:00	
15	13	12	10	10	E	0:10 0:54	0:56 1:57	1:58 3:22	3:23 6:32	6:33 12:00
20	15	15		F	0:10 0:40	0:40 1:37	2:29 3:57	3:58 7:05	7:06 12:00	
22	20			G	0:10 0:40	0:41 1:15	2:09 1:42	3:59 4:25	4:26 7:35	7:36 12:00
25		H			0:27	1:07	1:42	3:21	4:50	8:00
	I				1:06	1:41	2:23	4:49	7:59	12:00
					2:03	2:45	3:44	5:13	8:22	
					2:03	2:45	3:44	5:13	8:22	
					2:03	2:45	3:44	5:13	8:22	

## World Underwater Federation

### Examples

**2:00**

INTERVAL





## Lesson III



World Underwater Federation

---

Dive  
computer

## World Underwater Federation

### Dive computer

Max depth

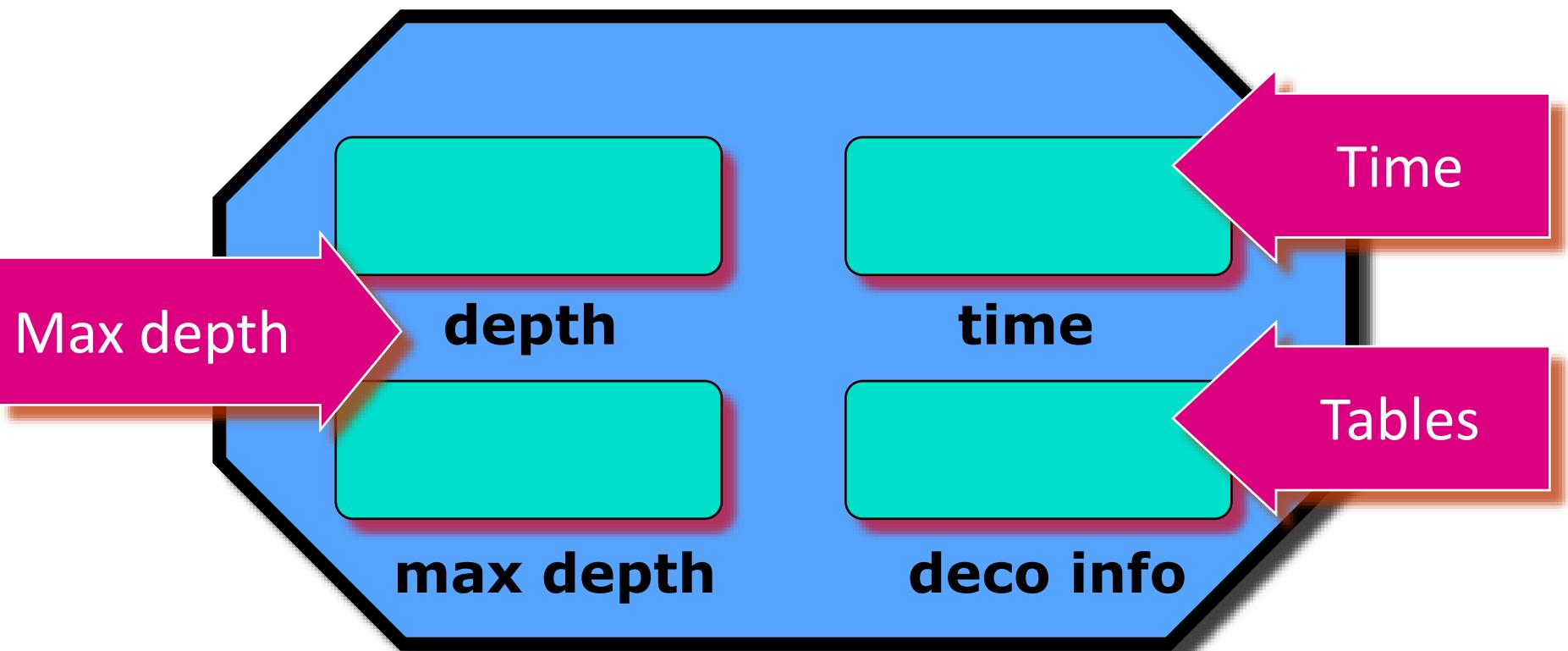


Time

DIVE LETTER GROUP	3	6	9	12	15	18	21	24	30	36	42	45	DEPTH (metres)		
	4,5	7,5	10,5	15	21	27	33	39	45						
A	60	35	25	20	15	5	5						0:10		
B	120	70	50	35	30	15	15	10	10	5	5	5	0:10 2:11		
C	210	110	75	55	45	25	25	15	15	10	10	10	0:10 1:40 2:50 1:30 2:49 12:00		
D	300	160	100	75	60	40	30	25	20	15	15	10	0:10 1:10 2:39 5:49 1:00 2:00 10:00		
E	225	135	100	75	50	40	30	25	20	20	15	15	0:10 1:00 1:58 3:23 6:33 0:54 1:57 3:22 6:32 12:00		
F	350	180	125	95	60	50	40	30	30	25	20	20	15	0:10 1:00 1:58 3:23 6:33 0:45 1:29 2:26 3:57 7:05 12:00	
G	240	160	120	80	70	50	40	35	30	25	22	20	G 0:10 0:41 1:16 2:00 2:59 4:26 7:36 0:20 0:27 0:56 1:04 2:00 2:59 4:26 7:36		
H	325	195	145	100	80	60	50	40	35	30	25		H 0:10 0:37 1:07 1:42 2:24 3:21 4:49 7:59 12:00 0:36 1:06 1:41 2:23 3:20 4:49 7:59 12:00		
I		245	170	120	100	70	55	45	40				I 0:10 0:33 0:69 1:20 2:24 3:44 3:43 6:12 12:00		
J	315	205	140	110	80	60	50								
K	250	160	130	90											
L		310	190	150	100										
M			220	170											
N				270	200										
O					310										
NEW DIVE LETTER GROUP															
BASED ON U.S. NAVY DIVE TABLES															
SAFETY STOP 3mt/3min															
REPETITIVE DIVE DEPTH (metres)															
12	241	213	187	161	138	116	101	87	73	61	49	37	25	17	7
15	160	142	124	111	99	87	76	66	56	47	38	29	21	13	6
18	117	107	97	88	79	71	61	52	45	36	30	24	17	11	5
21	96	87	80	72	64	57	50	43	37	31	26	20	15	9	4
24	76	73	68	54	46	43	38	32	28	23	18	15	10	6	4
27	76	64	58	53	47	43	38	33	26	24	20	16	11	7	3
30	62	57	52	48	43	36	34	30	26	22	18	14	10	7	3
33	55	51	47	42	38	34	31	27	24	20	16	13	10	6	3
36	50	46	43	39	35	32	28	25	21	18	15	12	9	6	3
39	44	40	38	35	31	28	25	22	19	16	13	11	8	6	3

Tables

### Dive computer





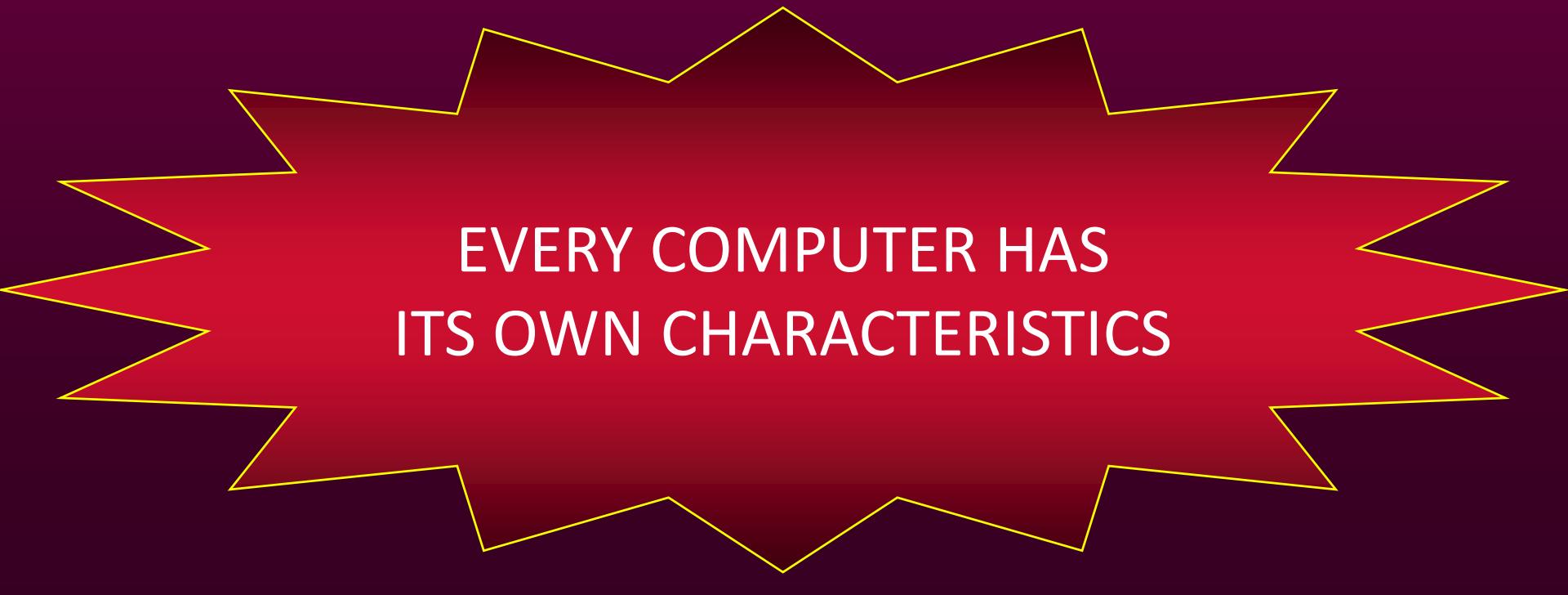
# Lesson III



World Underwater Federation

## Dive computer

Always refer to the handbook of  
instructions before using the instrument



EVERY COMPUTER HAS  
ITS OWN CHARACTERISTICS

The text is centered within a large, irregular yellow jagged border that resembles a stylized wave or a series of sharp, pointed arrows pointing upwards and outwards from the center.



# Lesson III



World Underwater Federation

## Dive computer

Every diver must have his own computer

TWO DIVERS HAVE ALWAYS  
A DIFFERENT DIVE PROFILE



# Lesson III



World Underwater Federation

## Dive computer

Always respect the ascent rate

ONE OF THE MOST IMPORTANT  
PARAMETER IS THE  
ASCENT RATE



# Lesson III



World Underwater Federation

## Dive computer

The maximum depth must be reached  
at the beginning of the dive

AVOID A YO-YO DIVE

A large, stylized yellow zigzag line graphic is centered on the slide. It has several peaks and valleys, creating a wave-like pattern. The background behind the line is a gradient from dark purple at the top to red at the bottom, with a darker red band in the middle. The text "AVOID A YO-YO DIVE" is positioned directly beneath the central peak of the zigzag line.



# Lesson III



World Underwater Federation

## Dive computer

Never make a comparison with the tables



OR USE THE TABLES  
OR THE COMPUTER

NEVER MIX THEM



# Lesson III

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## Lesson IV



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# Lesson 4



## Lesson IV



World Underwater Federation

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# Planning the dives

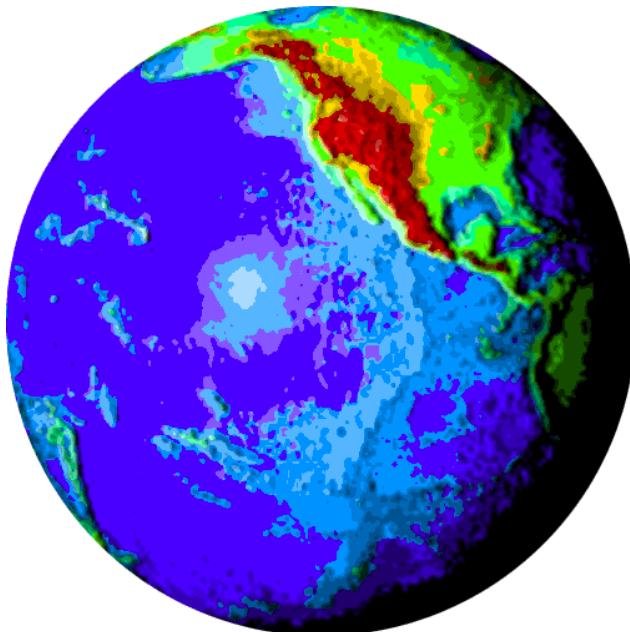


# Lesson IV



World Underwater Federation

## Planning the dives



DESTINATION  
TRANSPORT  
DIVING CENTER  
REASONS  
EQUIPMENT

### Planning the dives





# Lesson IV



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## Planning the dives



DIVE  
PURPOSES  
BUDDIES  
DEPTH  
TIME



# Lesson IV



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## Planning the dives

INFO  
SITE  
TRANSPORT  
TYPE

DIVE  
PURPOSES  
BUDDIES  
DEPTH  
TIME

## Planning the dives



DIVE  
PURPOSES  
BUDDIES  
DEPTH  
TIME



# Lesson IV



World Underwater Federation

## Planning the dives

LEARNING  
SEARCH  
ENJOYMENT  
SCIENTIFIC

DIVE  
PURPOSES  
BUDDIES  
DEPTH  
TIME



# Lesson IV



World Underwater Federation

## Planning the dives

FEELING  
CERTIFICATIO  
N  
EXPERIENCE  
AGREEMENTS

DIVE  
PURPOSES  
BUDDIES  
DEPTH  
TIME



# Lesson IV



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## Planning the dives



DIVE  
PURPOSES  
BUDDIES  
DEPTH  
TIME



# Lesson IV



World Underwater Federation

## Planning the dives



DIVE  
PURPOSES  
BUDDIES  
DEPTH  
TIME



# Lesson IV



World Underwater Federation

## Planning the dives



A large, yellow, three-dimensional starburst shape is centered on the slide. The word "AIR ?" is written in a large, yellow, sans-serif font inside the starburst. The background behind the starburst is a gradient from dark red at the edges to bright red in the center.

AIR ?



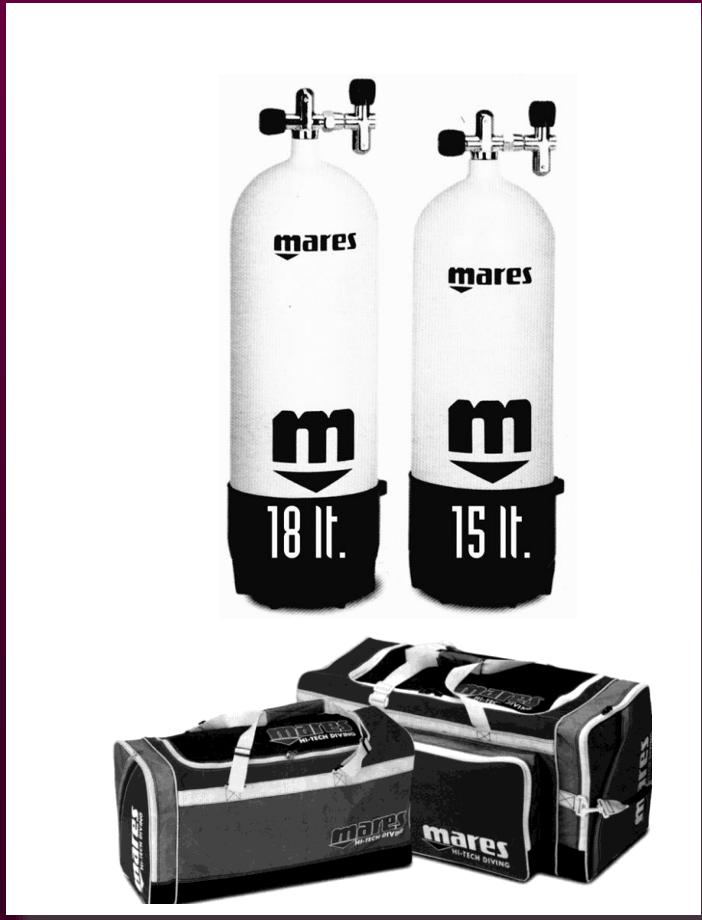
# Lesson IV



World Underwater Federation

Planning the dives

EQUIPMENT  
CONTROL  
MAINTENANCE  
TEST  
ASSEMBLING  
CARE



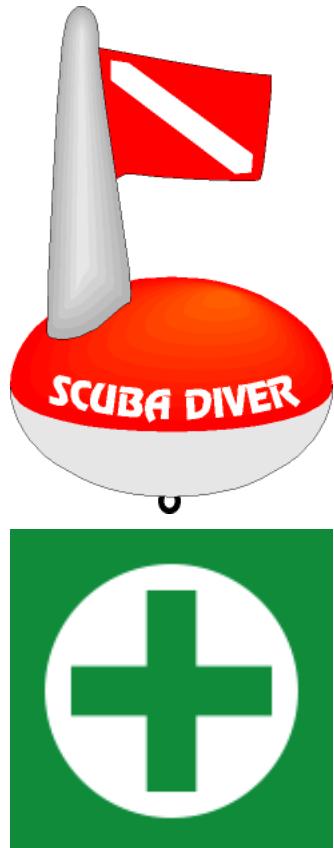


# Lesson IV



World Underwater Federation

## Planning the dives



SAFETY  
EQUIPMENT  
PERSONAL  
GROUP  
PROCEDURES  
FIRST AID

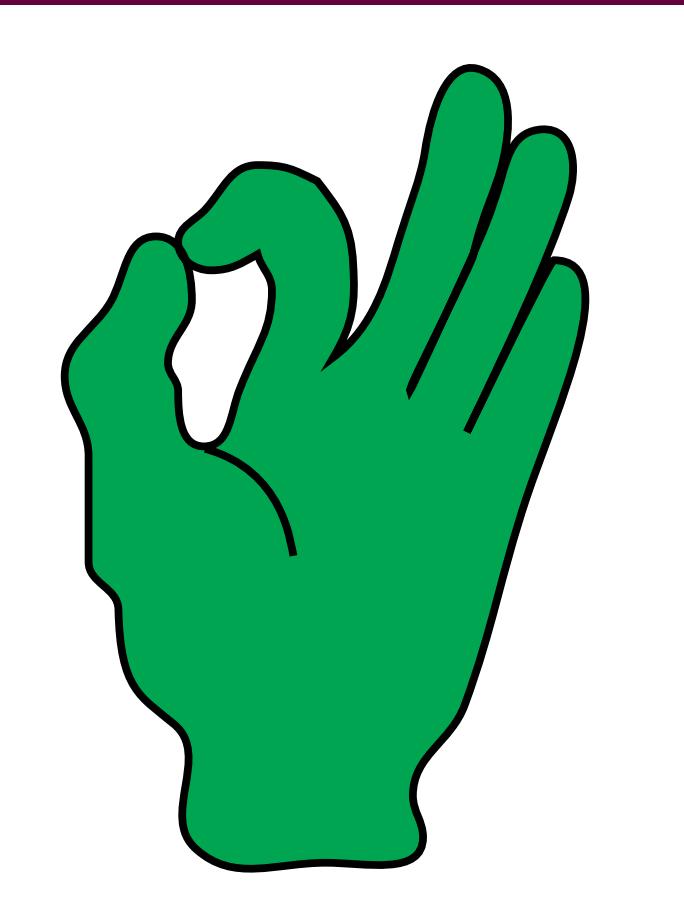


# Lesson IV



World Underwater Federation

## Planning the dives



BRIEFING  
SIGNALS  
ENTRY  
ORDER  
ASCENT  
LEAVE THE WATER

DEBRIEFING



## Lesson IV



World Underwater Federation

Planning the dives

DIVE LOG  
REGISTRATION



## Lesson IV



World Underwater Federation

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# Marine environment

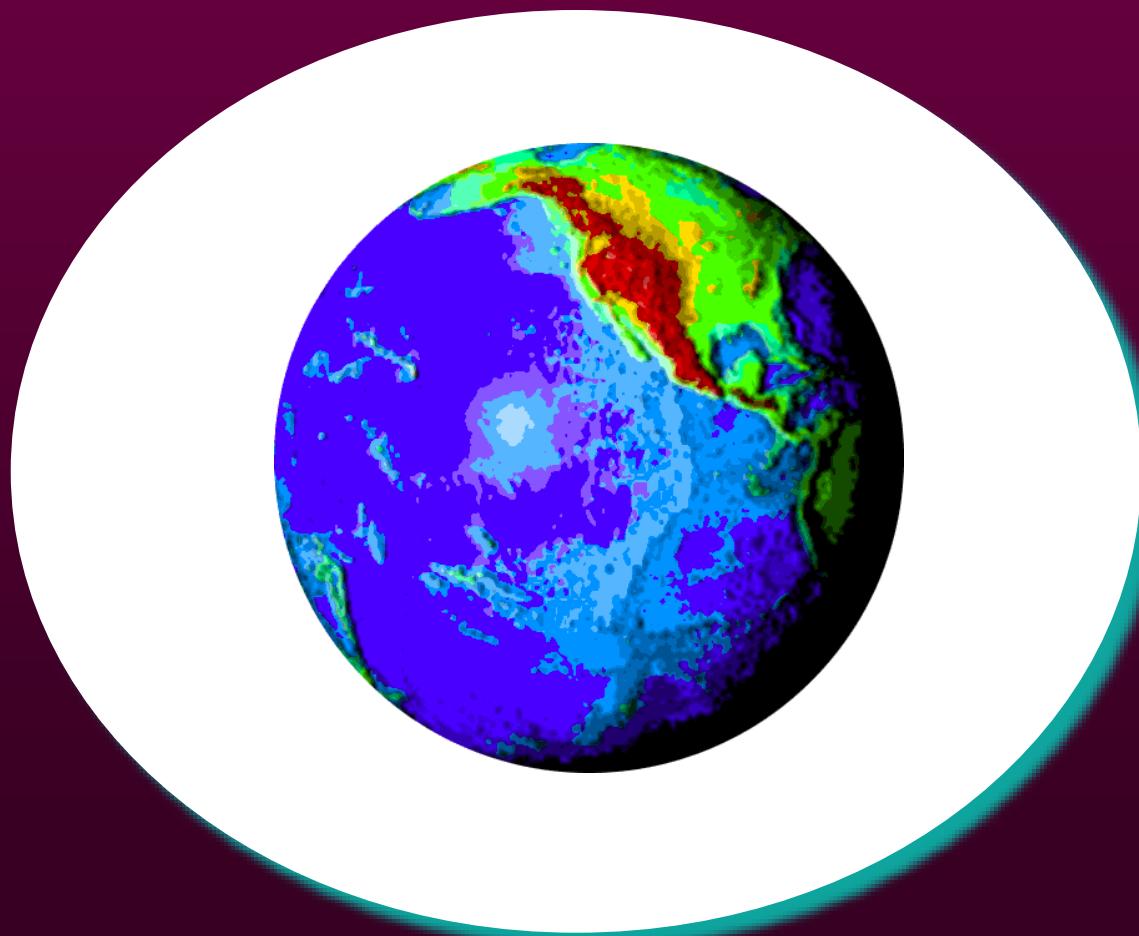


# Lesson IV



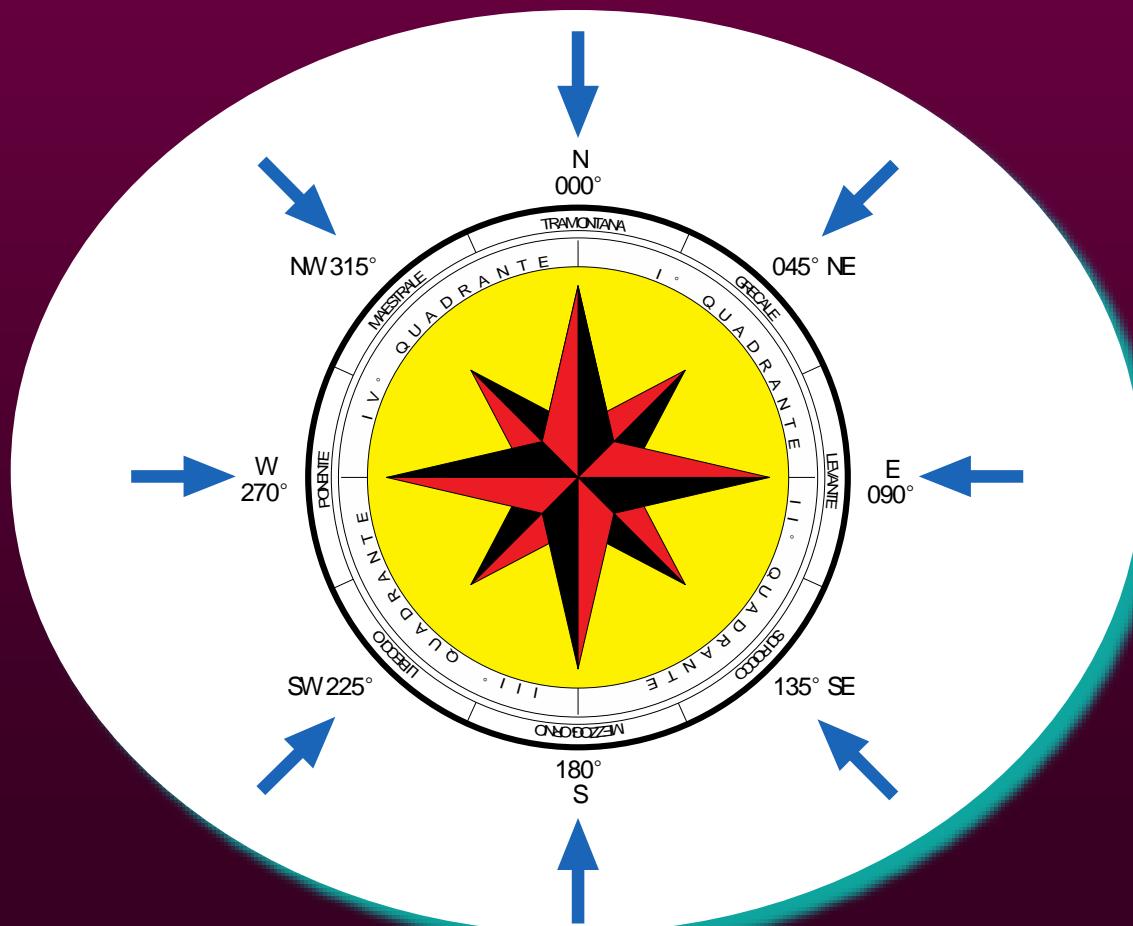
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## Marine environment

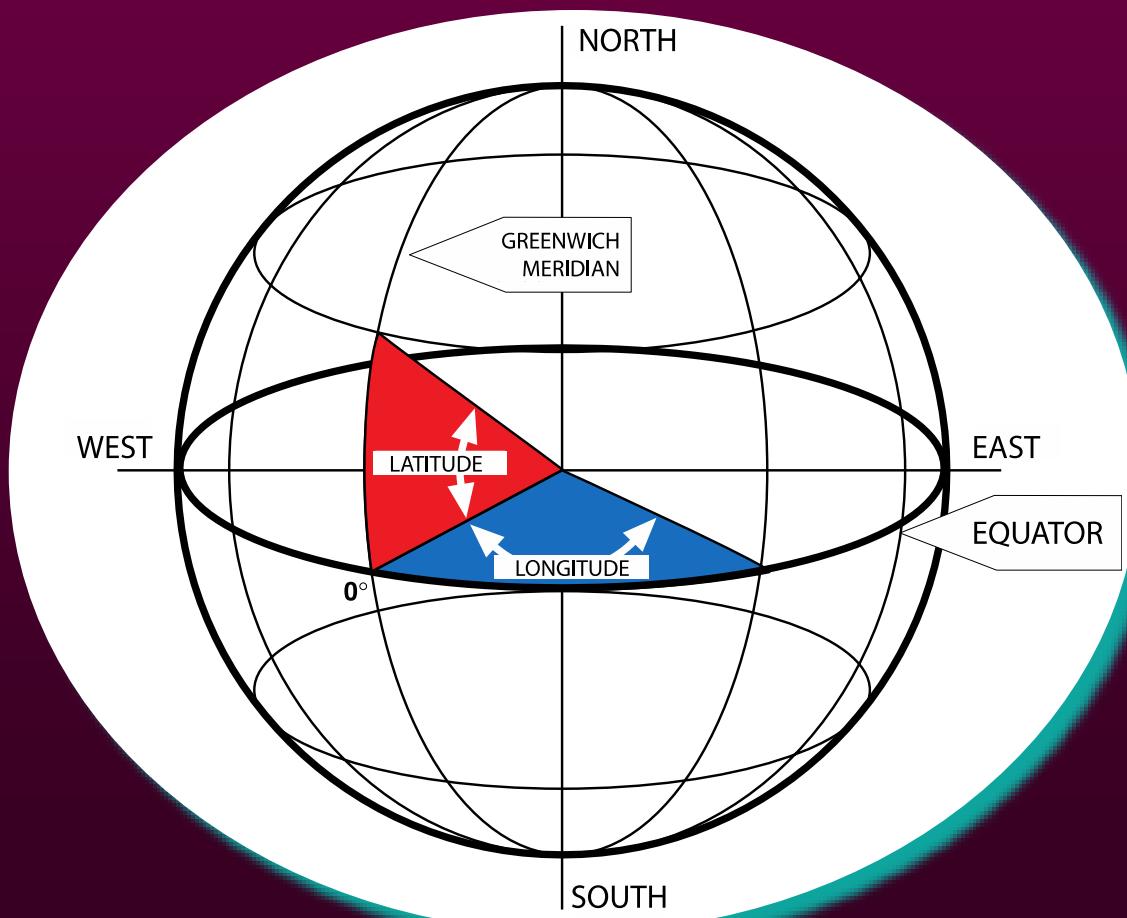


## World Underwater Federation

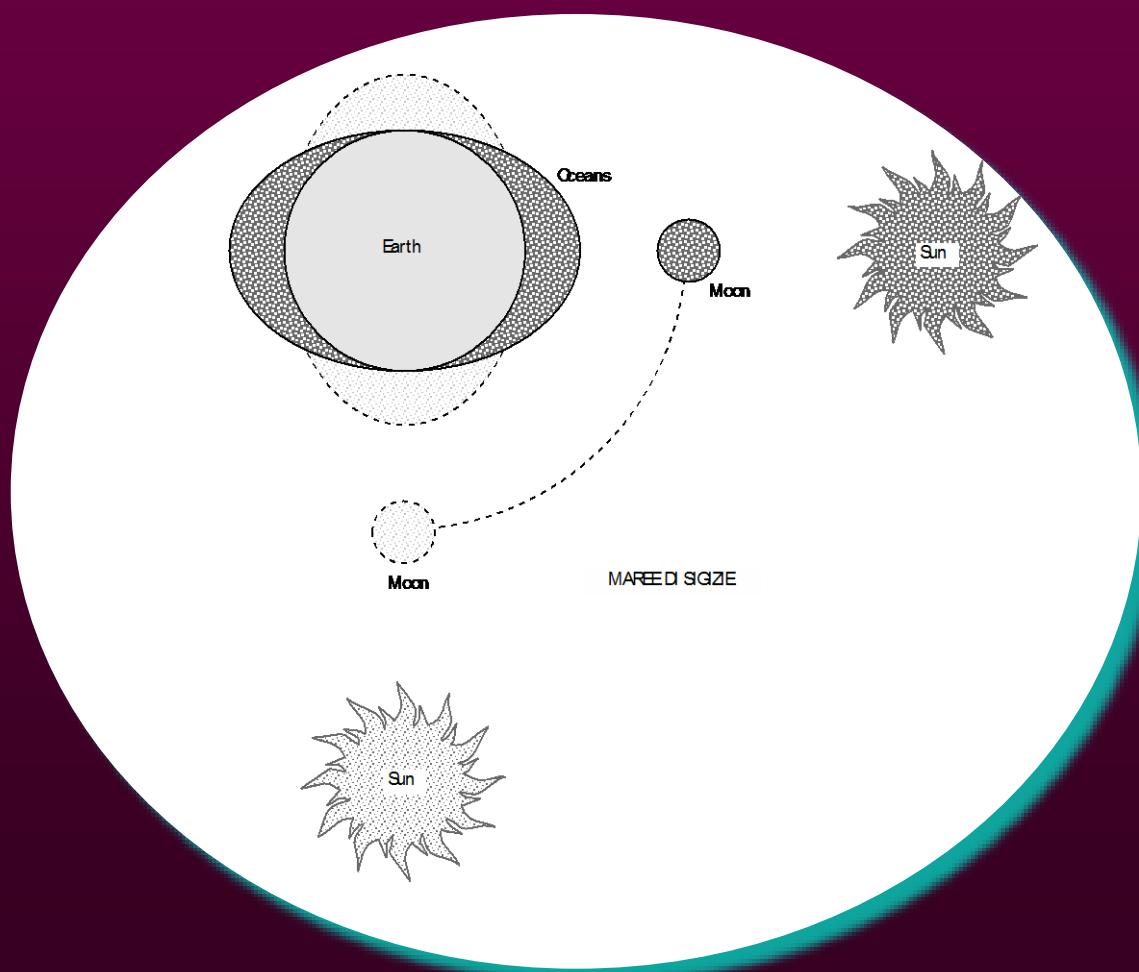
### Marine environment



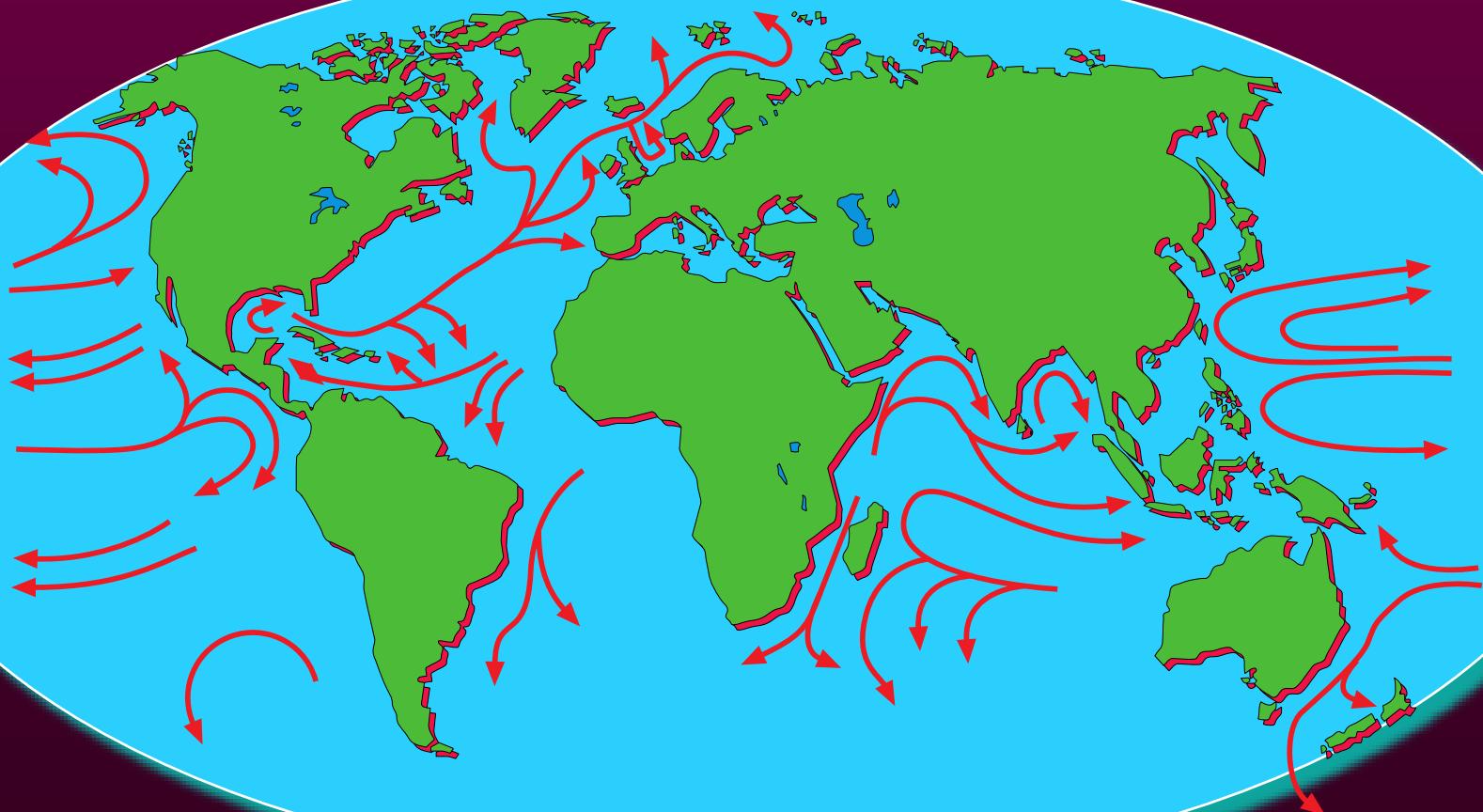
### Marine environment



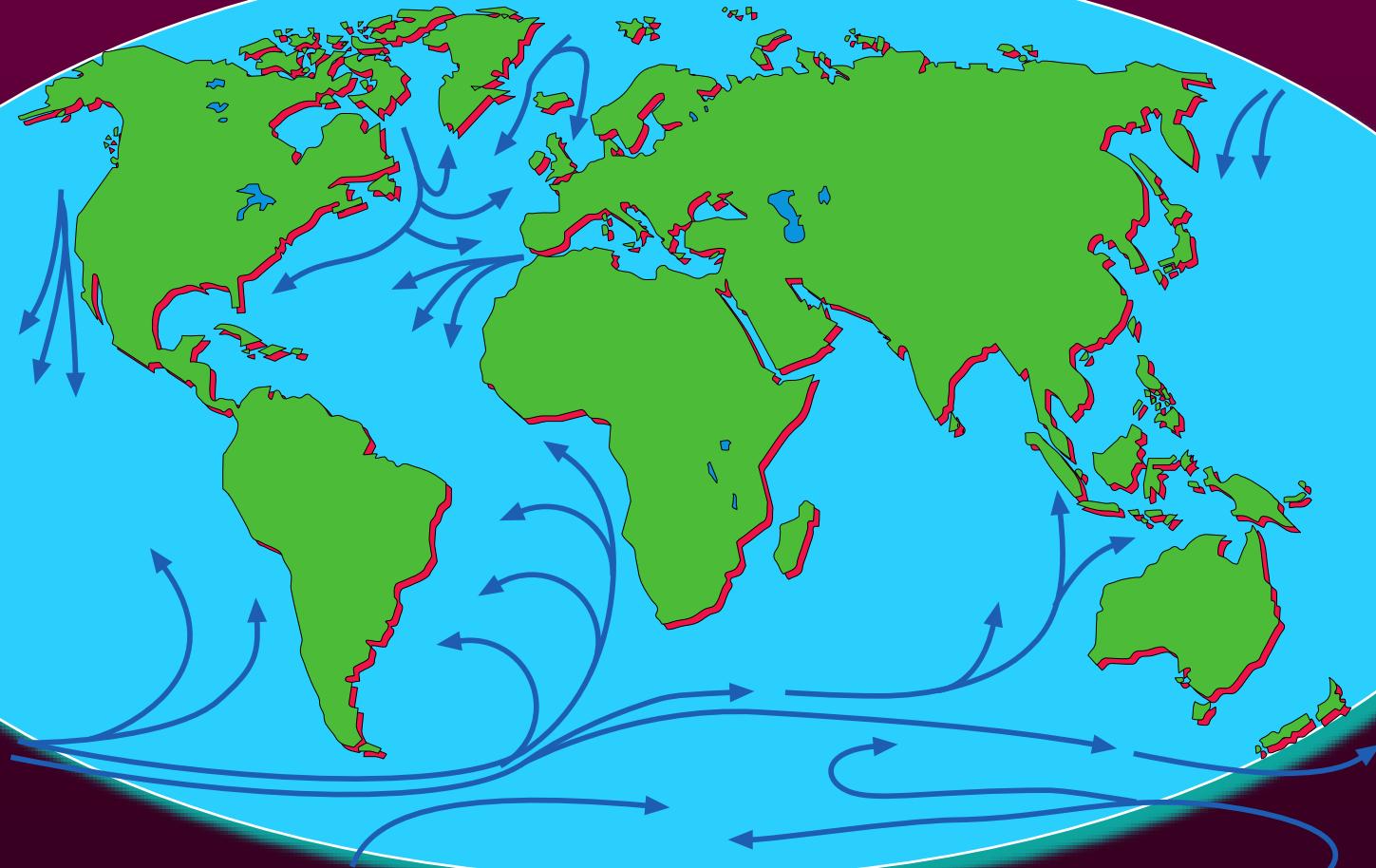
### Marine environment



### Marine environment



### Marine environment





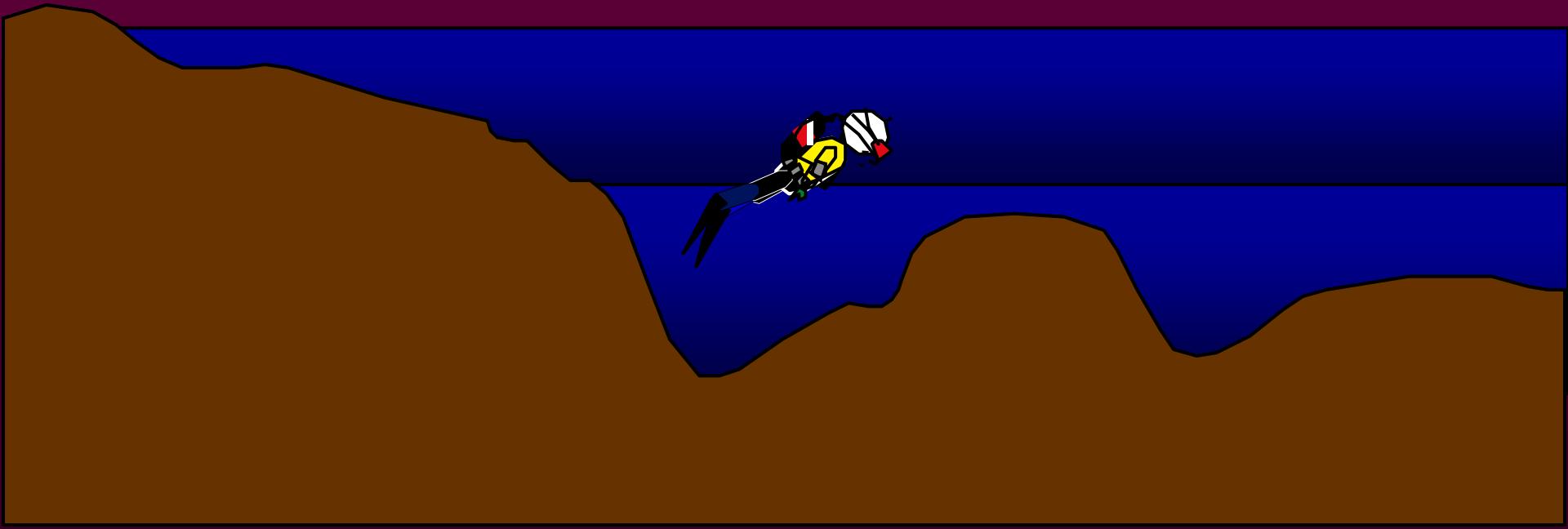
# Lesson IV



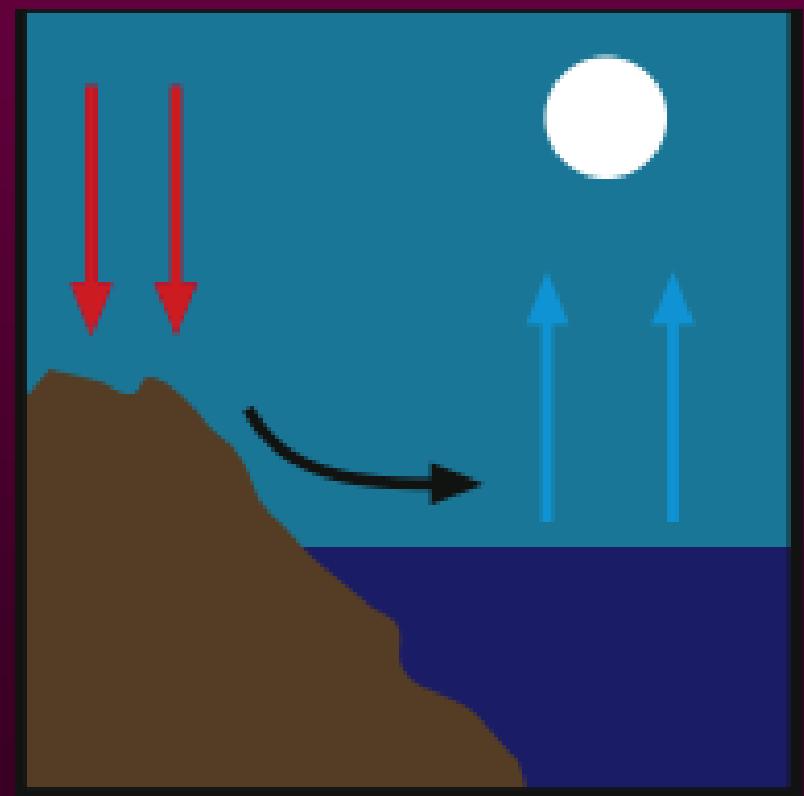
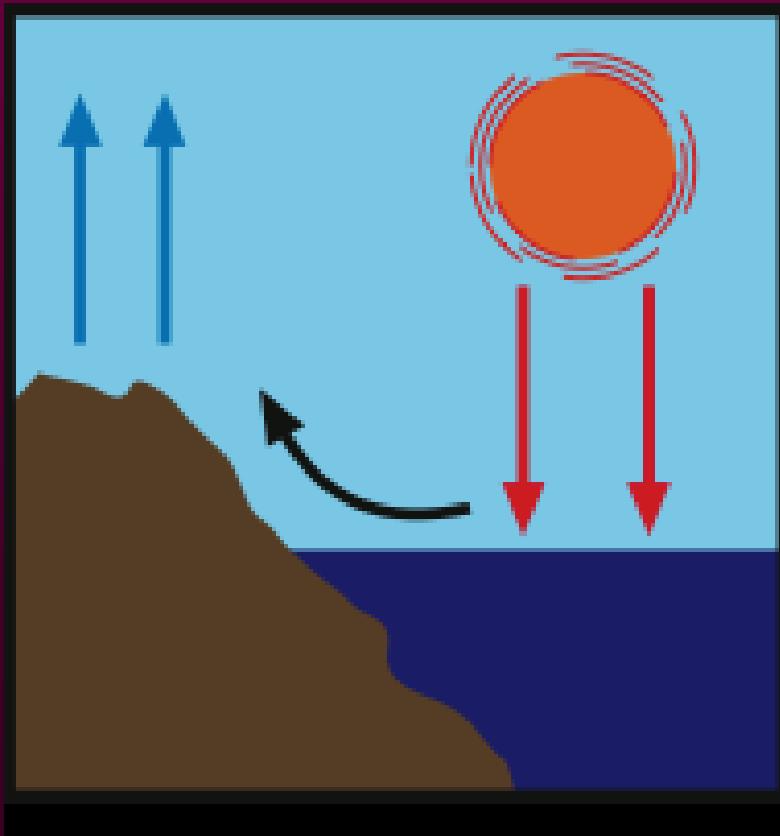
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## Marine environment

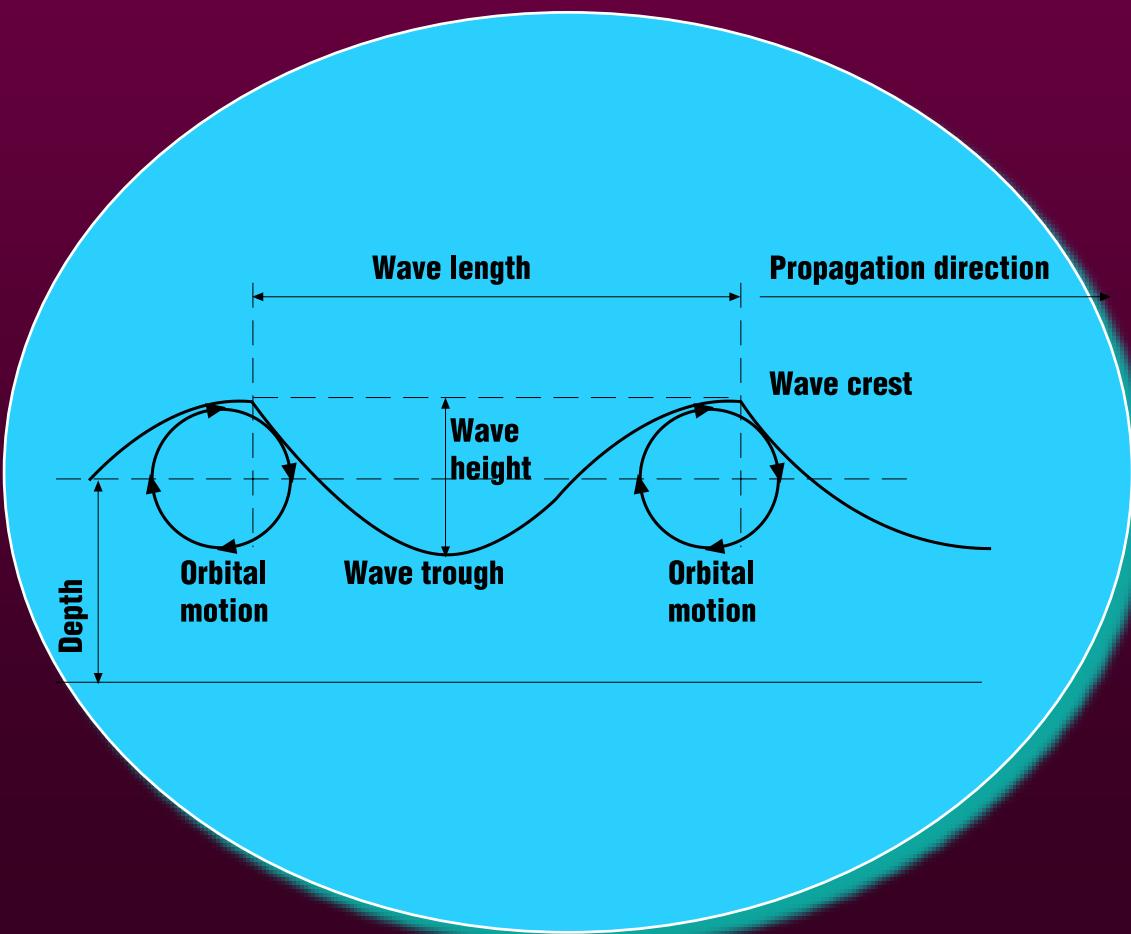
### Thermocline



### Marine environment



### Marine environment



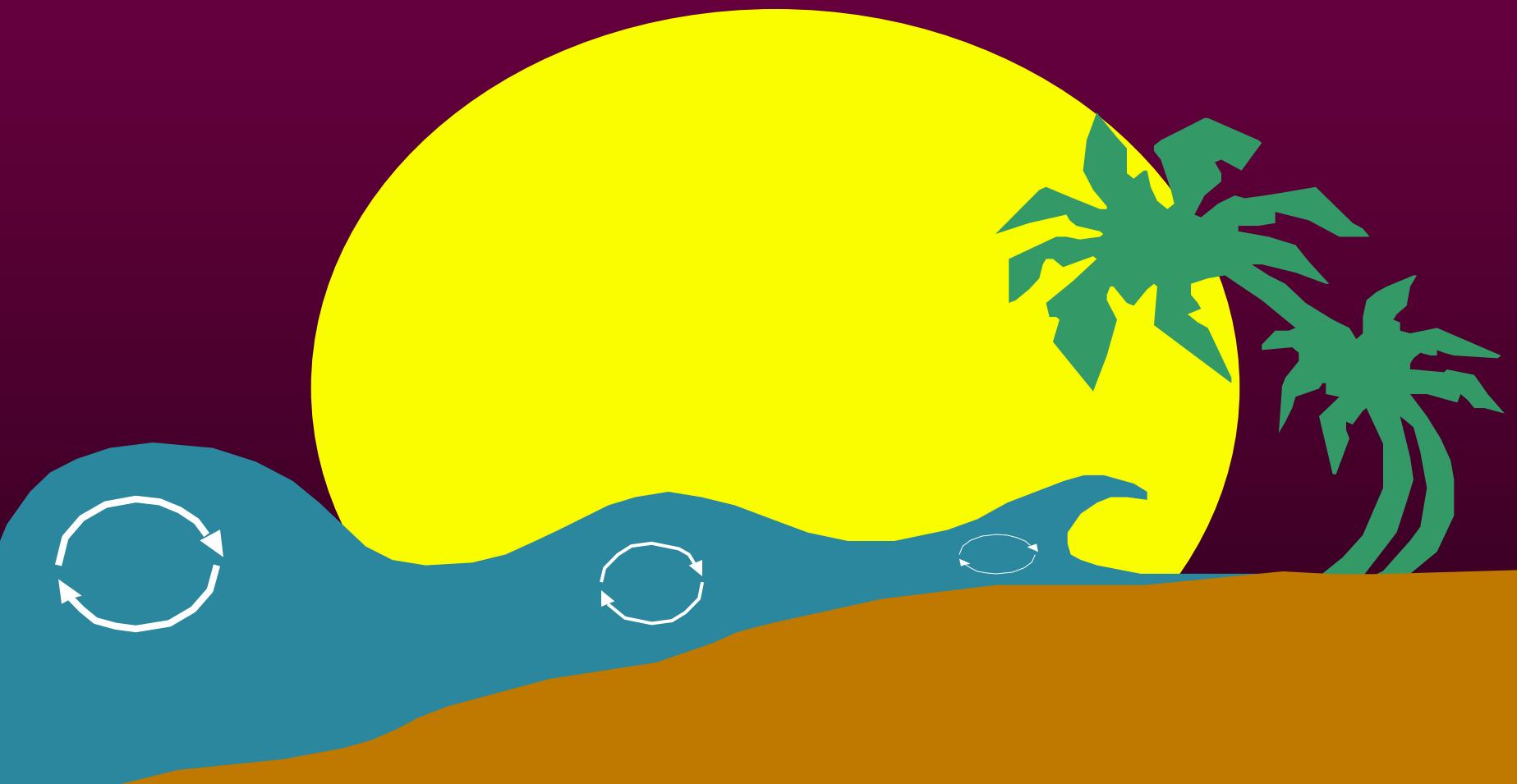


# Lesson IV



World Underwater Federation

## Marine environment



### Marine environment





## Lesson IV



World Underwater Federation

Planning the dives

**RESPECT THE  
ENVIRONMENT**



# Lesson IV

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