

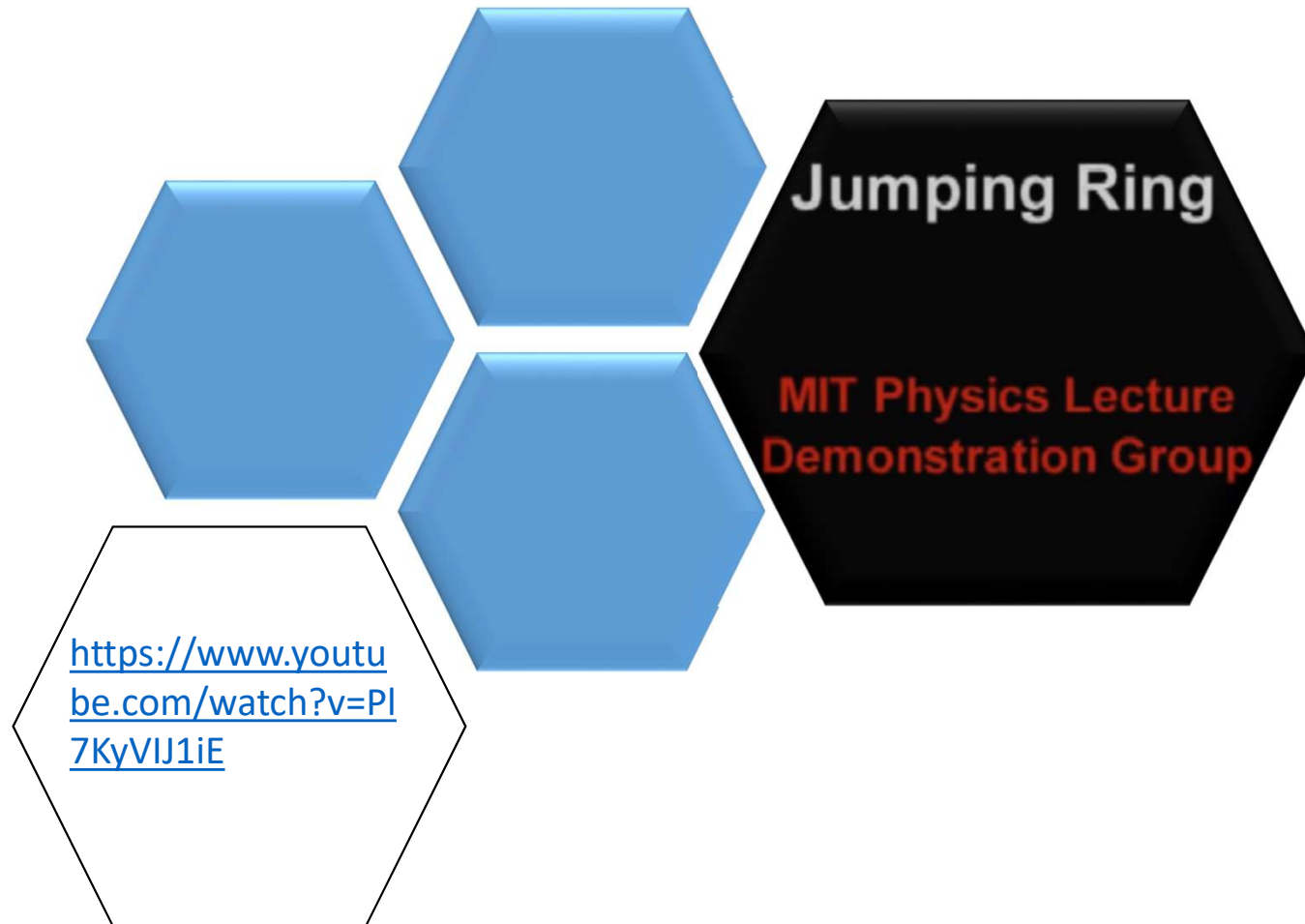
# Internazionalizzazione del curriculum nelle scuole del secondo ciclo: esperienze significative e buone pratiche

Cooperative learning activities for the teaching of Maths and Physics:  
a hands-on approach

Emanuela Magni e Renata Menaballi, Liceo G.B. Grassi, Lecco

Giovedì 22.2.2018

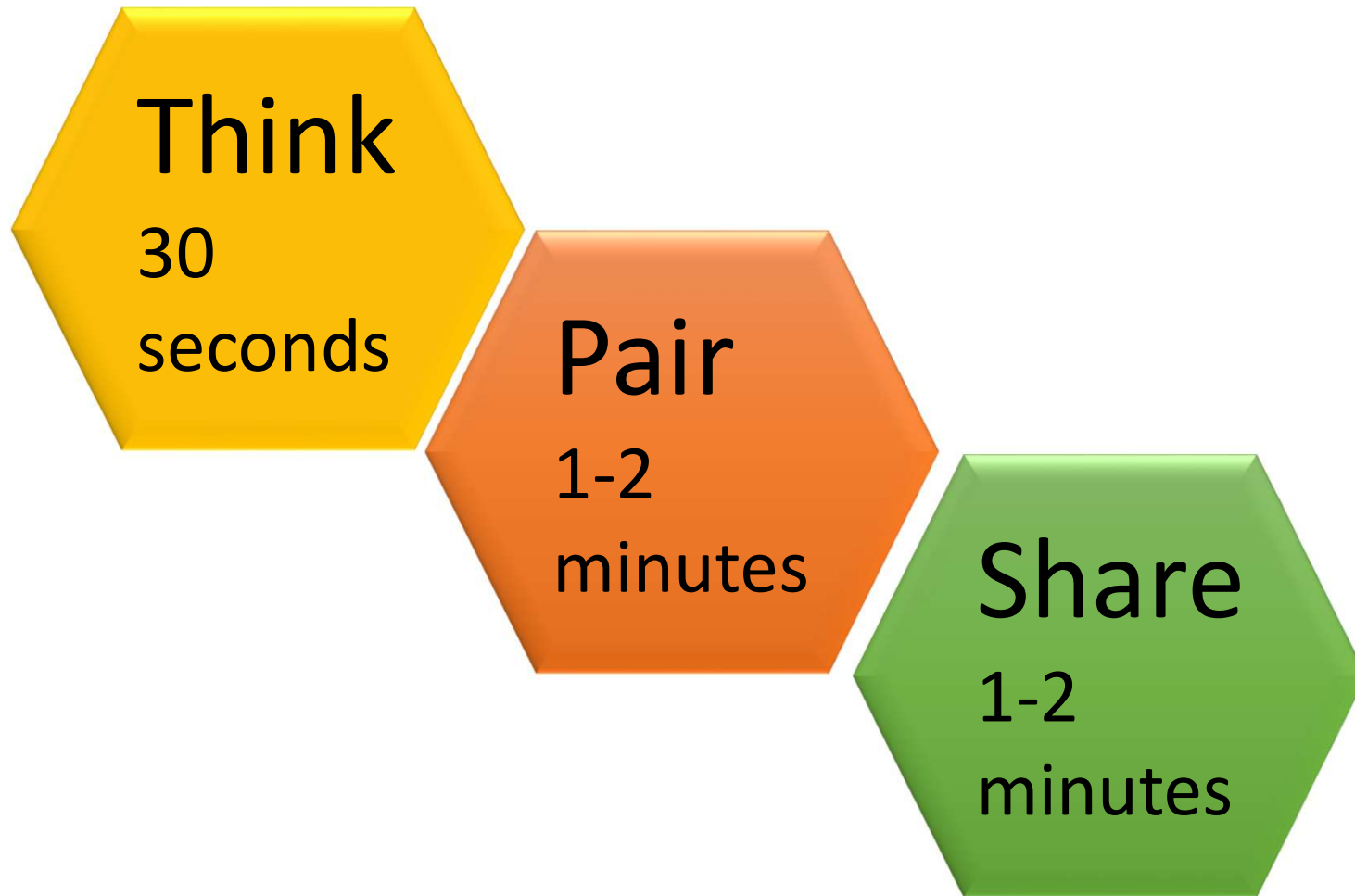
ore 16.00-16.45



## Jumping Ring

MIT Physics Lecture  
Demonstration Group

<https://www.youtube.com/watch?v=PI7KyVIJ1iE>



**Think**

30  
seconds

**Pair**

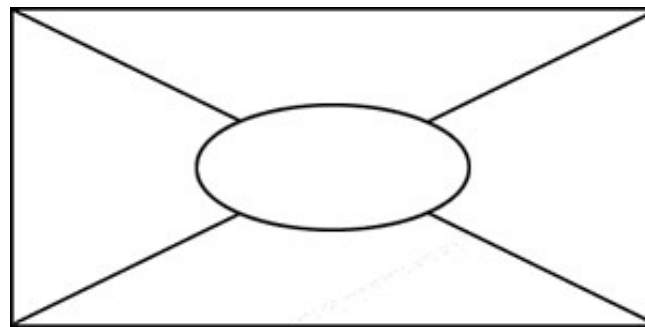
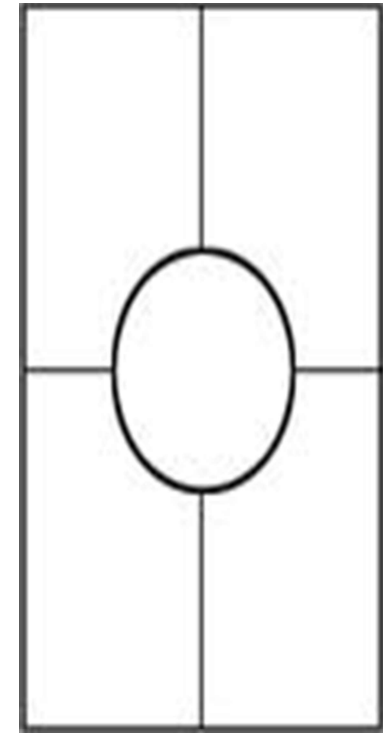
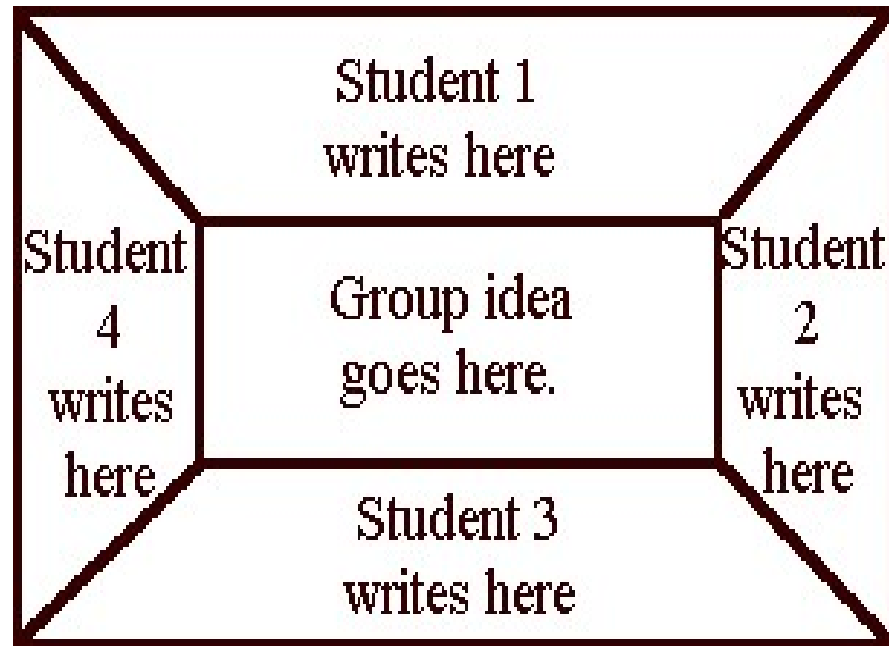
1-2  
minutes

**Share**

1-2  
minutes

# Place Mats

Break up  
into groups  
of 4 around  
your Place  
Mat.



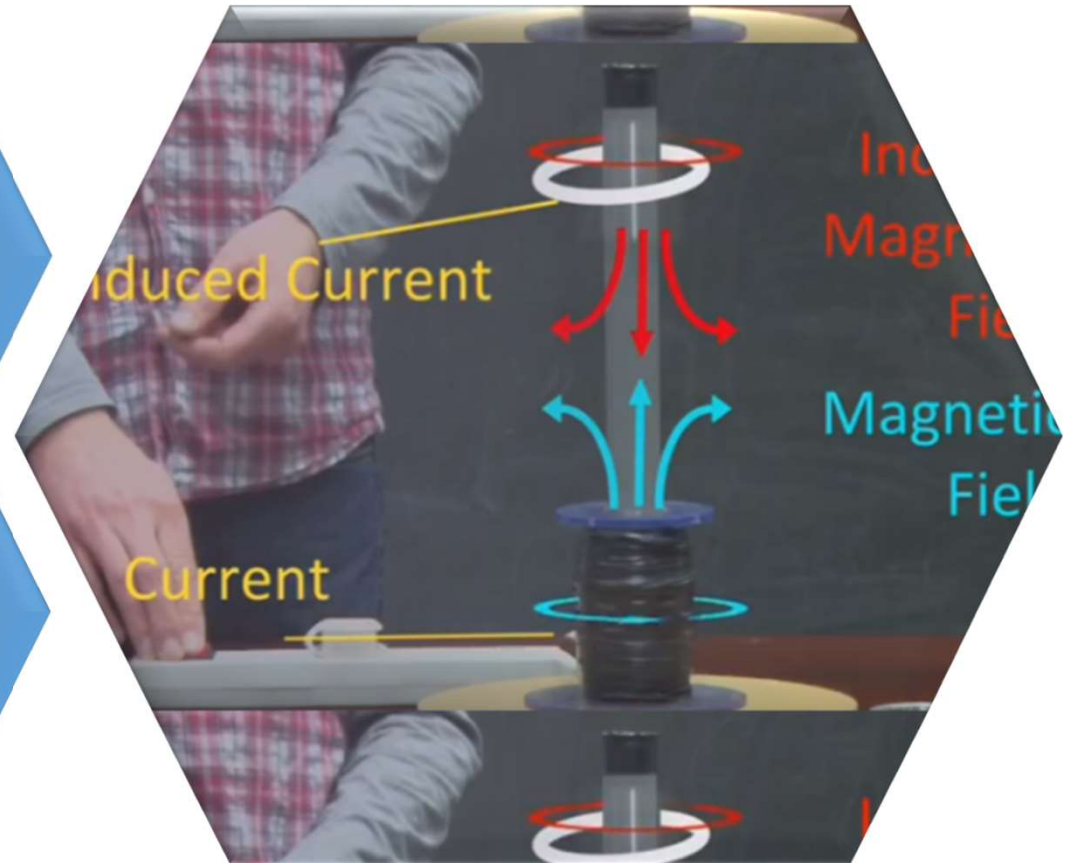
# Place Mat Task

Divide your area  
in two columns  
named  
“quantities” and  
“laws”

Individually write  
the physical  
quantities and  
laws involved in  
the video

Join with your  
group to complete  
the centre with a  
combination of all  
your individual  
answers

<https://www.youtube.com/watch?v=T9PflsLZqY8&t=5s>



## Place Mat Strategies

Ghost  
walk

One stray  
rest stay

One stay  
rest stray

30 seconds  
silent  
thinking  
before any  
answers

Brainstorm  
in pairs first  
for 2-3  
minutes

Write some  
thoughts  
down  
before  
answering

Discuss  
with your  
neighbour  
first

## Articulate then Answer or Think Pair Share

Give students the opportunity to  
articulate their thinking before  
answering



**Reduce TTT  
Increase  
STT**

**Accessible,  
but also  
cognitively  
demanding**

**Interactive  
Classrooms**

**Scaffolding**



# Shared Reading ABBC



Read

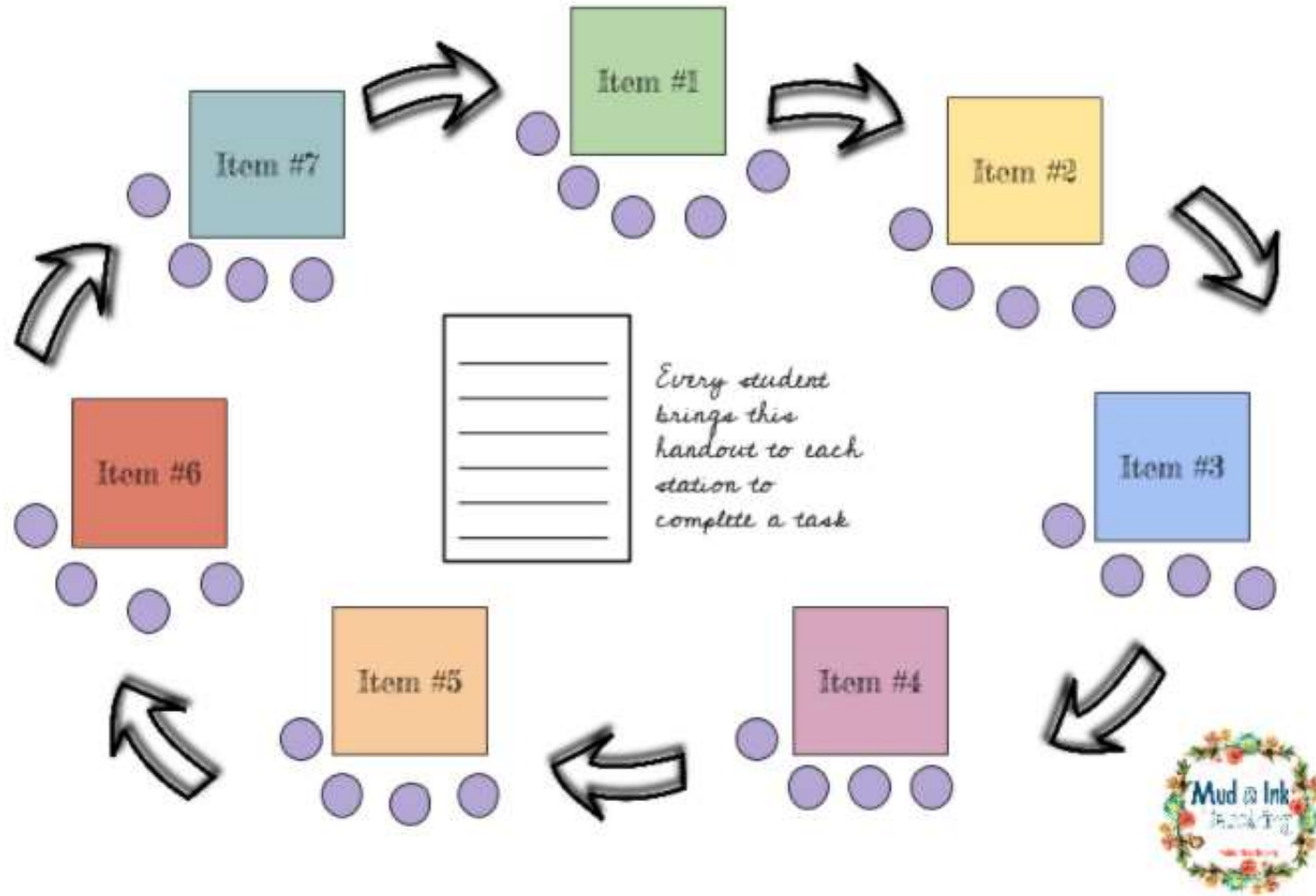
Rephrase

Clarify

<http://www.physicsclassroom.com>

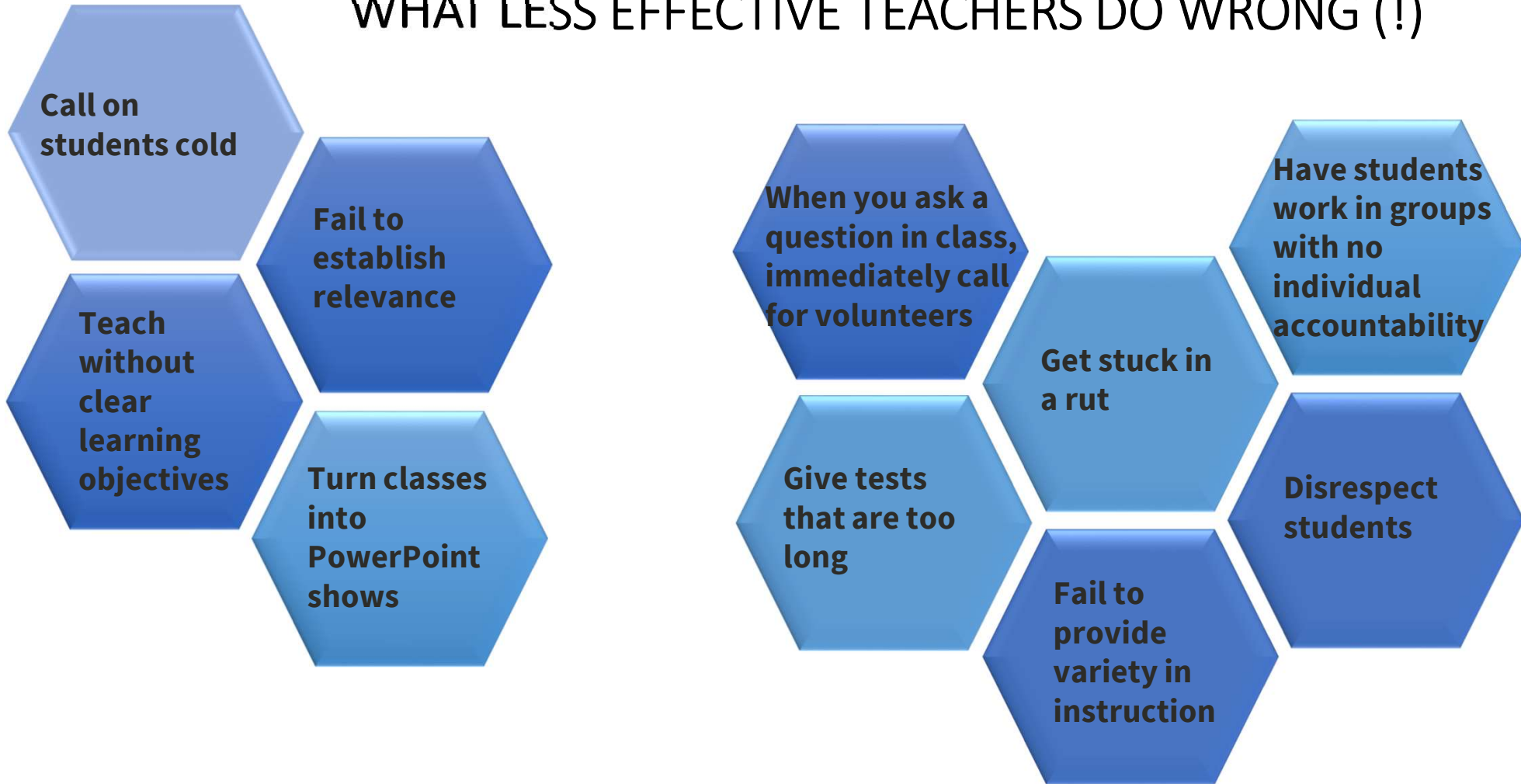
<http://www.k12reader.com>

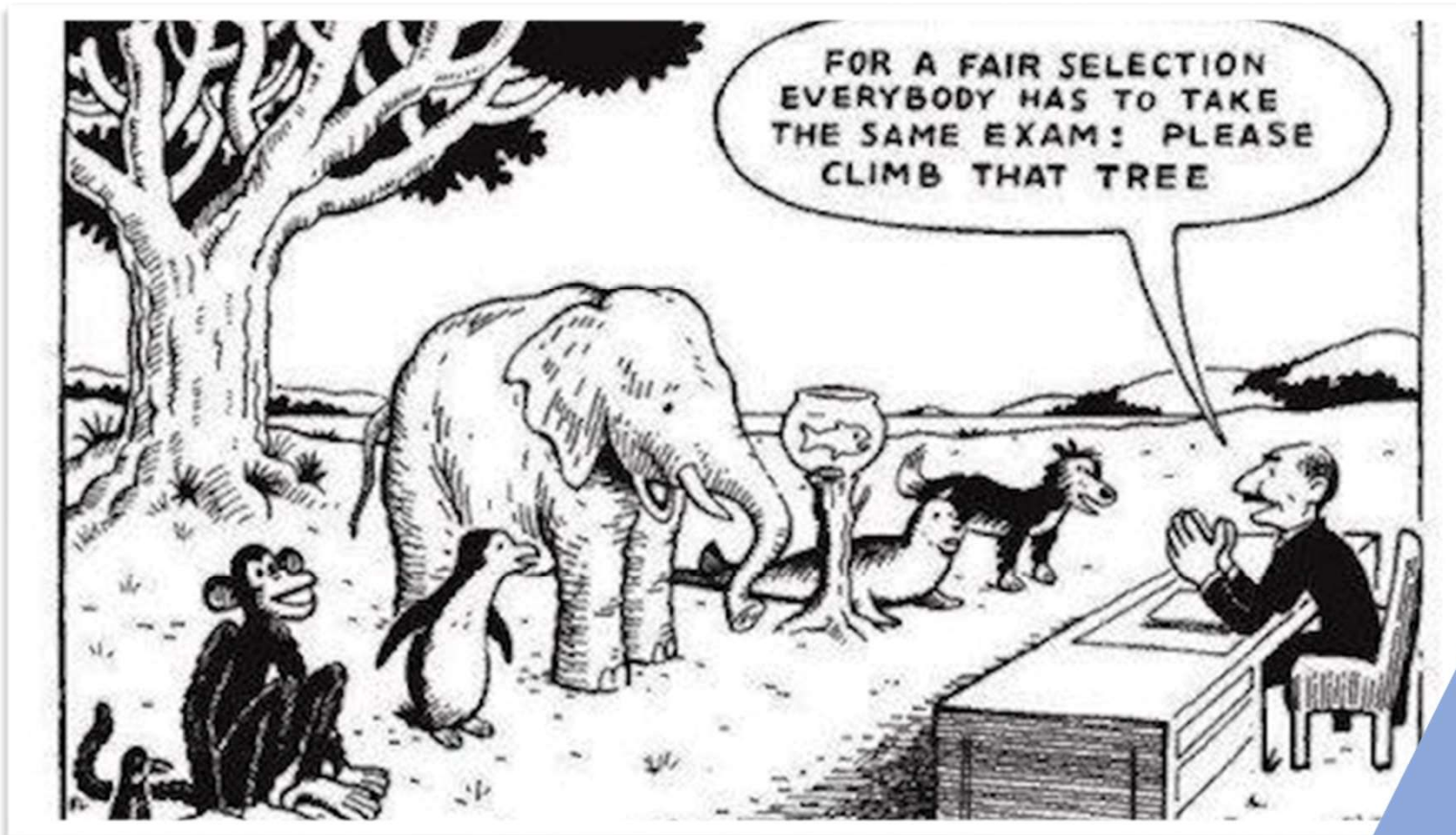
*How to run a*  
**GALLERY WALK**



# Gallery Walk

WHAT LESS EFFECTIVE TEACHERS DO WRONG (!)





Grazie per  
l'attenzione