



# Elements of History and Evolution of Brain Science in High School work-alternative activities

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Edition 10 - Virtual Conference**

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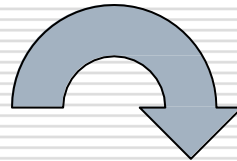


# MODERN DIDACTIC BRAIN SCIENCE PCTO ITINERARY

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- ❑ **BRAIN SCIENCE RESEARCH ORIENTEERING  
WORK OF SCIENTISTS IN HIGH SCHOOL**



- ❑ **INTEGRATED ACTIONS WITH NEW  
STRATEGIES TO PROMOTE DYNAMIC SOFT  
SKILLS IN YOUNG PEOPLE**

# **PCTO NEUROSCIENCE:** **MISSION OF PROJECT**



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- ❑ TO DEVELOP INNOVATIVE METHODOLOGY IN  
PCTO SCHOOL – ALTERNATIVE  
WORKING ITINERARY



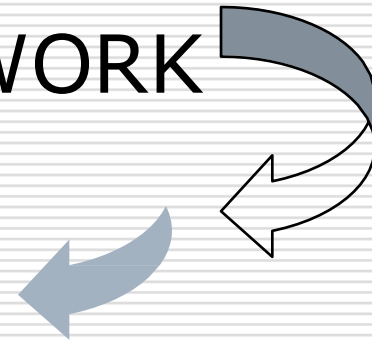
DIGITAL DISTANCE  
**LEARNING INTEGRATED METHOD"**  
(Science–Technology–History of Science)

# BRAIN SCIENCE EVOLUTION: FROM SCIENTIFIC RESEARCH TO DIGITAL WORK EDUCATION

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□ Modern Brain Science RESEARCHES  
ICT DISTANCE DIGITAL WORK



□ HISTORY OF BRAIN SCIENCE

# INNOVATOR BIOLOGIST RESEARCHER - TEACHER

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- ❑ “Principal investigator” with IBSE team researcher - students



- ❑ Leadership in collaborative Brain Education
- ❑ Director of new didactic strategies with Scientific literacy and “Enquire method”

# OCTOPUS STUDIES FOR BRAIN SCIENCE APPLICATIONS

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## CONTAMINATION BETWEEN DIFFERENT DISCIPLINES

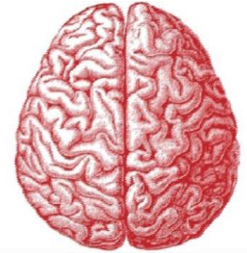


**\*\*Intelligence of Polipus**

**\*\*Genome of Polipus  
(Video and Article of Nature)**



# SEMINARIES OF BIOLOGIST - TEACHER FOR BRAIN PCTO ITINERARY



1. Brain Science and work Methodology
2. One experimental technique for Neuroscience
3. STEM NEUROSCIENCE for cooperative working
3. How to realize Brain Science Digital Platform for innovative communication



# BRAIN SCIENCE PCTO FOR STUDENTS

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*Learning by doing strategies about*  
**Brain Science** topics  
For PCTO activities

“TO MOTIVATE SCIENCE ***IBSE***  
***METHODOLOGY***”

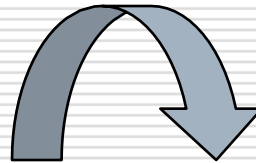


# NEUROSCIENCE SKILLS FOR WORK

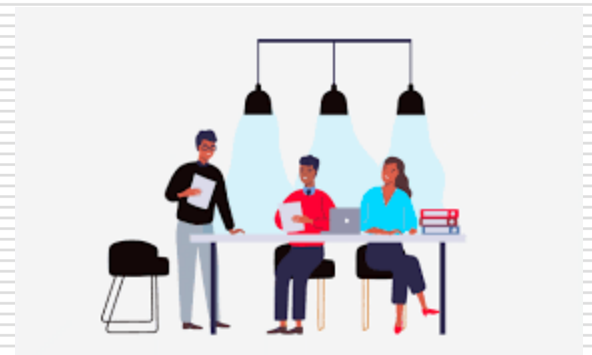
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☐ IBSE NEUROSCIENCE RESEARCH

☐ DIGITAL BRAIN WORK

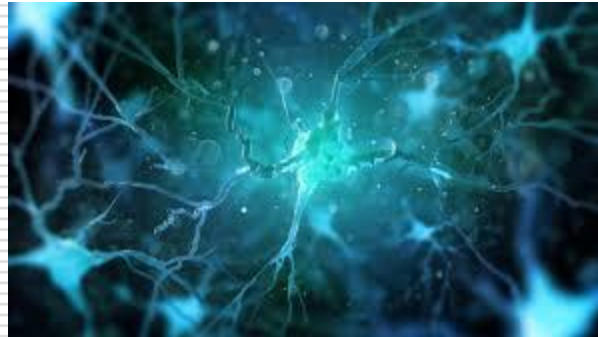


☐ CORRECT WRITTEN AND ORAL  
COMMUNICATION IN VIRTUAL CONFERENCE



# **“NEUROSCIENCE INNOVATIVE ELEMENTS FROM INTERNATIONAL NEUROSCIENCE MEETING 2019”**

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**\*\*Marina Minoli, European  
Neurochemistry Meeting, 9/2019  
Milan University, «*Evolution of  
Molecular Neuroscience in modern  
didactics research for High School*»**

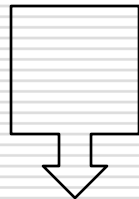
# IBSE NEUROSCIENCE METHODS



IBSE

□ DIDACTIC AND COMMUNICATION  
DIGITAL SHARING WORK IN  
ACTIVE SCIENTIFIC COMMUNITY


□ **INTERACTIVE COLLECTION**



□ **PROJECT PCTO METHODOLOGY**

# COOPERATIVE AND INDIVIDUAL PCTO WORK

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- ❑ INQUIRE STEM APPROACH IN LITTLE GROUP
  - ❑ MODEL OF SCIENTIFIC INQUIRE OF SCIENCE WORLD
  - ❑ From single activity to COOPERATIVE LEARNING AC
  - ❑ 
  - ❑ **LITTLE SCIENTIFIC COMUNITY**
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# CONCLUSION AND SUMMARY

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- ❑ To guide students in working as researchers
  - ❑ To construct innovative educational PCTO path about Neuroscience educating with “**Complexity approach” disciplinary contaminations**
  - ❑ To propose different didactic strategies also to present some **limits/benefit of Neuroscience researches**
  - ❑ To promote critical thinking to communicate as scientists, **working in multidisciplinary way with different responsibility**
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- THANKS FOR YOUR ATTENTION!

- *Prof. Marina B. A. Minoli,  
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