

FACILITATOR

Job Description:

- **Make sure group starts quickly and remains focused during the entire activity.**
 - *Good tools/phrases to use:*
 - Assign tasks for collecting and distributing materials as needed.
 - Assign roles like calculator or significant figure checker.
 - “I think we have everything, are we ready to begin?”
- **Takes care of time management.**
 - *Good tools/phrases to use:*
 - Keep an eye on the clock.
 - Keep group moving forward.
 - Communicate with group on discussion deadlines.
 - “I think we need to focus on _____ now in order to complete this section of the activity *on time*.”
 - “We have _____ minutes before we need to be ready to discuss this section. Let’s get this done.”
- **Make sure all voices in the group are heard.**
 - *Good tools/phrases to use:*
 - Address group members by name.
 - Ensure *every* group member contributes.
 - Assign different members to read sections of activity on a rotating basis.
 - “(Name), what do you think about . . . ?”
 - “I would like to hear what you think, (name).”

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PERIODIC TABLE OF THE ELEMENTS

<http://www.ktf-split.hr/periodni/en/>

PERIOD	GROUP																				
	1 IA	2 IIA		3-10										11 IB	12 IIB	13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	18 VIIIA
1	1 1.0079 H															5 10.811 B	6 12.011 C	7 14.007 N	8 15.999 O	9 18.998 F	10 20.180 Ne
2	3 6.941 Li	4 9.0122 Be													13 26.982 Al	14 28.086 Si	15 30.974 P	16 32.065 S	17 35.453 Cl	18 39.948 Ar	
3	11 22.990 Na	12 24.305 Mg	3 44.956 Sc	4 47.867 Ti	5 50.942 V	6 51.996 Cr	7 54.938 Mn	8 55.845 Fe	9 58.933 Co	10 58.693 Ni	11 63.546 Cu	12 65.39 Zn	31 69.723 Ga	32 72.64 Ge	33 74.922 As	34 78.96 Se	35 79.904 Br	36 83.80 Kr			
4	19 39.098 K	20 40.078 Ca	SCANDIUM 39 88.906 Y	TITANIUM 40 91.224 Zr	VANADIUM 41 92.906 Nb	CHROMIUM 42 95.94 Mo	MANGANESE 43 (98) Tc	44 101.07 Ru	45 102.91 Rh	46 106.42 Pd	47 107.87 Ag	48 112.41 Cd	49 114.82 In	50 118.71 Sn	51 121.76 Sb	52 127.60 Te	53 126.90 I	54 131.29 Xe			
5	37 85.468 Rb	38 87.62 Sr	YTRIUM 39 88.906 Y	ZIRCONIUM 40 91.224 Zr	NIObIUM 41 92.906 Nb	MOLYBDENUM 42 95.94 Mo	TECHNETIUM 43 (98) Tc	RUTHENIUM 44 101.07 Ru	RHODIUM 45 102.91 Rh	PALLADIUM 46 106.42 Pd	SILVER 47 107.87 Ag	CADMIUM 48 112.41 Cd	INDIUM 49 114.82 In	TIN 50 118.71 Sn	ANTIMONY 51 121.76 Sb	TELLEURIUM 52 127.60 Te	IODINE 53 126.90 I	XENON 54 131.29 Xe			
6	55 132.91 Cs	56 137.33 Ba	57-71 La-Lu Lanthanide	72 178.49 Hf	73 180.95 Ta	74 183.84 W	75 186.21 Re	76 190.23 Os	77 192.22 Ir	78 195.08 Pt	79 196.97 Au	80 200.59 Hg	81 204.38 Tl	82 207.2 Pb	83 208.98 Bi	84 (209) Po	85 (210) At	86 (222) Rn			
7	87 (223) Fr	88 (226) Ra	89-103 Ac-Lr Actinide	104 (261) Rf	105 (262) Db	106 (266) Sg	107 (264) Bh	108 (277) Hs	109 (268) Mt	110 (281) Uun	111 (272) Uuu	112 (285) Uub	114 (289) Uuq UNUNQUADIUM								

LANTHANIDE

57 138.91 La	58 140.12 Ce	59 140.91 Pr	60 144.24 Nd	61 (145) Pm	62 150.36 Sm	63 151.96 Eu	64 157.25 Gd	65 158.93 Tb	66 162.50 Dy	67 164.93 Ho	68 167.26 Er	69 168.93 Tm	70 173.04 Yb	71 174.97 Lu
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ACTINIDE

89 (227) Ac	90 232.04 Th	91 231.04 Pa	92 238.03 U	93 (237) Np	94 (244) Pu	95 (243) Am	96 (247) Cm	97 (247) Bk	98 (251) Cf	99 (252) Es	100 (257) Fm	101 (258) Md	102 (259) No	103 (262) Lr
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(1) Pure Appl. Chem., 73, No. 4, 667-683 (2001)
Relative atomic mass is shown with five significant figures. For elements with no stable nuclides, the value enclosed in brackets indicates the mass number of the longest-lived isotope of the element.
However three such elements (Th, Pa, and U) do have a characteristic terrestrial isotopic composition, and for these an atomic weight is tabulated.

Editor: Aditya Vardhan (adivar@netlinx.com)

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SPOKESPERSON

Job Description:

- **Communicates group questions and clarifications with the teacher or other groups. (This is the only group member designated to do so.)**
 - *Good tools/phrases to use:*
 - “Our group is confused about how _____ relates to _____.”
 - “Our group reached consensus that the answer to number _____ was _____.”
- **Ensures all group members have had the opportunity to respond to the question before asking outside sources.**
 - *Good tools/phrases to use:*
 - “Does anyone in our group know the answer to _____?”
 - “Before we ask the teacher, could someone in our group clarify the answer to....”
- **Ensures that everyone in the group agrees on what question to ask if an outside source is needed.**
 - *Good tools/phrases to use:*
 - “Does everyone agree we need to find out . . . ?”
- **Presents conclusions of the group to the class, as requested.**
 - *Good tools/phrases to use:*
 - “The reasoning we used to answer number _____ was . . .”

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Quality Indicators for POGIL Roles

Facilitator

- The group begins promptly.
- The group stays on task, progressing through the activity in a timely fashion.
- All members of the group are participating.

Spokesperson

- Seeks group input before consulting teacher or other groups.
- All group members feel satisfied that their issues have been addressed.
- Articulates questions and responses well.

Quality Control

- Any individual sample collected should accurately demonstrate the groups' understanding.
- Regularly checks that group members' answers are consistent (not necessarily identical).
- Encourages individuals to make sure answers are thorough (i.e. showing work).

Process Analyst

- Analyst reports to group regarding group performance at least one time during the activity as well as at the end.
- Analyst provides insightful and positive feedback on how the group is working.
- Analyst completes the process questions report form if directed.

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QUALITY CONTROL

Job Description:

- **Guides consensus-building process; group must agree on responses to questions.**
 - *Good tools/phrases to use:*
 - “Would you all agree that ____ is an acceptable answer for question number ____?”
 - “Could you please rephrase what you just said?”
 - “Is your response/answer completely supported by your explanation/calculations?”
 - “Would that response make sense to someone from another group?”
- **Verifies that ALL individual responses are: 1) consistent on paper, 2) reflect the group’s consensus, and 3) are high quality.**
 - *Good tools/phrases to use:*
 - **Look** at responses from individual papers (sampling!).
 - Have all group members shown work on quantitative problems?
 - Do all group members’ responses have complete thoughts or explanations?
- **Ensures that accurate revisions happen after class discussions.**
 - *Good tools/phrases to use:*
 - Can all group members respond **correctly** to a question about what you learned?
 - “(Name) when you read (name’s) answer, do you see any differences?”

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Process Skills

Personal Skills

- Judging own progress in learning (i.e. Concepts, techniques and skills)
- Accepting peer review

Critical Thinking

- Visualizing
- Building analogies
- Identifying similarities / differences
- Summarizing
- Defining rules
- Drawing conclusions

Communication

- Articulating an idea
 - Expresses concepts, definitions and explanations in grammatically correct sentences
 - Verbally expresses ideas to group members during activity
- Defining purpose
- Rephrasing
 - Develop concept in own words
- Writing with technical detail
 - Express concepts, definitions, and explanations using scientifically correct language.
- Contributions to group discussion

Management

- Managing time
- Utilizing resources effectively – both people and materials

Information Processing

- Observing / recognizing
- Listening
- Predicting
- Reading
- Interpreting graphs / models

Problem Solving

- Persisting / taking risks
- Identifying key issues
- Identifying assumptions
- Applying prior knowledge
- Understanding context

Teamwork

- Respecting everyone's opinions
- Forming shared understanding
- Compromising/Cooperating
- Building consensus
- Sharing ideas
- Including all group members

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PROCESS ANALYST

Job Description:

- **Observes group dynamics and behavior with respect to the learning process, using report format.**
 - *Good tools/phrases to use:*
 - Is everyone in the group participating?
 - Are group members listening carefully to each other?
 - Are group members being patient and respectful of each other?
 - Fill out the report form that may be collected for the activity.
- **Reports to the group periodically during the activity on how the group performs.**
 - *Good tools/phrases to use:*
 - “Let’s stop for a minute. I have a couple comments on what we are doing well and a suggestion on how we could be more productive.”
 - “Let’s wait for (name) to catch up before we move on.”
- **Be ready to report to the entire class about how well the group is operating.**

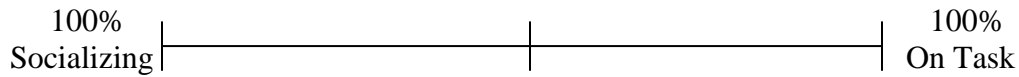
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Process Analyst Report Form

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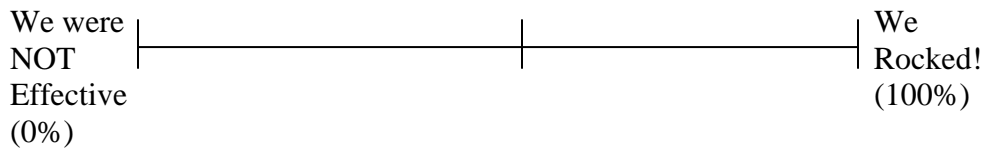


2. Which three process skills (from the list) did your group do particularly well?

3. What process skill(s) need improvement? Explain.

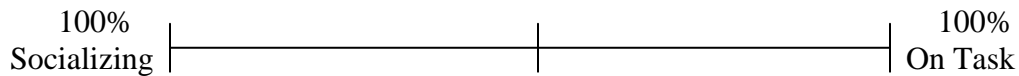
4. What frustrated your group most today?

5. Team Effectiveness



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