Regulations of the International Young Naturalists' Tournament

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Chapter 1. General information

I. International Young Naturalists' Tournament

The International Young Naturalists' Tournament (hereinafter the *IYNT*) is a team competition for school students in their ability to solve research problems of natural sciences, convincingly present their solutions, and defend them in scientific discussions called Science Fights (hereinafter *SF*.)

II. General Council

The IYNT is solely governed by the General Council (hereinafter the *GC*) established by the Founding Members of the IYNT. The GC presides over the manner in which the IYNT is held, releases its problems, approves the Regulations and ensures their implementation, and has ultimate authority over the IYNT competition. The GC establishes other principal Bodies, Centers and Committees of the IYNT, assigns their responsibilities, and appoints Chairpersons. The GC entrusts the Local Organizing Committee with hosting each respective IYNT event.

III. Local Organizing Committee

The Local Organizing Committee (hereinafter the *LOC*) provides board, lodging and premises, and ensures all necessary conditions and facilities to conduct the IYNT competition in the host country. The LOC determines the venue of the IYNT and its schedule in agreement with the GC.

IV. Participants

1. The participants are aged 12 through 16. The age limit is set such that participants of the main league of the IYNT must not turn the age of 17 years during the calendar year of the respective IYNT competition.

2. A Team is composed of six students. The GC may allow participation of smaller Teams. The Team is headed by a Captain who is the official representative of the team during the IYNT. No Team Member can be replaced after the Opening Ceremony.

3. The Team is accompanied by two adult Team Leaders who supervise their Team and work in the Jury.

4. To participate, a Team must pre-register for the IYNT and subsequently fulfill the requirements for registration. These requirements are determined and made public by the GC.

V. Agenda

The agenda of the IYNT includes the following social activities and rounds which are graded by the Jury:
Opening Ceremony;
Introduction of Teams via short performances (graded round);
Drawing lots;
Taking a group photograph of all participants by the LOC;
Jury meetings;
Two Selective SFs with main IYNT problems (graded rounds);
One Selective SF with the problems *Invent Yourself* (graded round);
One Selective SF with additional IYNT problems (graded round);
One Semi-Final SF (graded round);
One Final SF (graded round);
Cultural program provided by the LOC;
Extra contests in various nominations (not used in the official ranking of Teams);
Closing and Awards Ceremony.

VI. Introduction of Teams at the Opening Ceremony

Each Team introduces themselves in a short artistic performance during the Opening Ceremony. The performance can be of any genre. Team Leaders may participate. The Teams can in particular produce and display a short video about them. The duration of the Introduction is limited to 3 minutes. Exceeding this time limit incurs a penalty.

VII. Problems

1. Main problems are research oriented experimental and theoretical problems in natural sciences released by the GC to the Teams and the general public in advance but not earlier than on the closing day of the previous IYNT. These problems may be used in national or regional competitions recognized by the GC.

2. Problems *Invent Yourself* are open-ended questions that ask the Teams to specify and formulate their own problem statements and solve the stated tasks. The general descriptions of these problems are included in the set of main problems. Teams must submit their written statements of the problems *Invent Yourself* to the organizers in the beginning of the IYNT. The submitted statements of the problems are made public.

3. Additional problems of the IYNT are not published in advance and are released to the Teams directly in the course of the IYNT. These problems are research oriented and are solved by the Teams during the respective SF.

VIII. Science Fights

A Science Fight (*SF*) is a meeting of three or two Teams in which the Teams discuss and present their solutions of the IYNT problems. There are five types of SFs in the IYNT which differ in the type of problems, in the agenda, and in the eligibility of Teams to participate.

1. Selective SFs with main problems are conducted according to the Standard SF regulations and use the main IYNT problems known to the Teams in advance. All Teams participate.

2. Selective SF with the problems *Invent yourself* is conducted according to the Standard SF regulations. Each Team presents and defends their own problems *Invent yourself*. Only those Teams participate that have timely submitted their original statements of *Invent yourself* to the organizers.

3. Selective SF with additional problems is conducted according to the Standard SF regulations with changes in the preparation time and challenge procedure. This SF uses the additional problems released to the Teams shortly before the SF. All Teams participate.

4. Semi-Final SF is conducted according to the Standard SF regulations and uses the main IYNT problems. Only appropriately determined winners of Selective SFs participate.

5. Final SF is conducted according to the Standard SF regulations with omitted challenge procedure. Main IYNT problems are used. Only appropriately determined winners of Semi-Final SF participate.

IX. Jury

1. The Jury evaluates the solutions of the IYNT problems presented by the Teams and the Team performances in SFs by publicly showing integer Grades. The GC may issue guidelines or grading criteria aimed at improved scoring. Each individual Juror decides on their own Grades and bears sole responsibility over the Grades. No Grade can be corrected

retroactively. Each Juror must publicly justify any of their Grades upon the request of Team Captains or the Chairperson.

2. Groups of Jury for SFs are composed of independent experts and Team Leaders such that their Teams do not take part in the respective SF. The Jury is formed by the GC in cooperation with the LOC.

3. One of the Jurors in each Group is the Chairperson who conducts the SF and ensures that the Regulations are respected. The Chairperson is appointed by the GC or by an accredited Committee before the beginning of the SF.

X. Official language

The official language of the IYNT is English.

Chapter 2. Science Fights

I. Standard Science Fight regulations

1. Each SF in each Group is conducted by the Chairperson who facilitates discussions, announces the ordering, manages time, clarifies the Regulations and ensures their implementation. In the beginning of a SF, the Chairperson asks Jurors to introduce themselves, and asks Team Captains to introduce their Team Members. At the SFs from the fourth Selective SF onwards, the Chairperson carries out the Captain's Contest in the beginning of the SF.

2. In the Groups of three Teams, the SF is carried out in three Stages. In each Stage, each Team plays one of the three roles: the Reporter, the Opponent, and the Reviewer. The roles are assigned in the following order:

3 Teams	Stage I	Stage II	Stage III
Team 1	Reporter	Reviewer	Opponent
Team 2	Opponent	Reporter	Reviewer
Team 3	Reviewer	Opponent	Reporter

3. In the Groups of two Teams, the SF is carried out in two Stages. In the Stage I, one Team acts as the Reporter, and the second Team is divided into two independent sub-teams that take the roles of the Opponent and the Reviewer, respectively. The division takes place before the challenge procedure in the beginning of the Stage. Team Captain decides how the Team is divided and appoints a temporary acting Captain for the sub-team from which he or she is absent. In the Stage II, the Teams change their roles. The roles are assigned in the following order:

2 Teams	Stage I	Stage II
Team 1	Reporter	Opponent, Reviewer
Team 2	Opponent, Reviewer	Reporter

4. In the first three Selective SFs, the sequence of performances is determined by the scheme established at the Opening Ceremony in drawing lots. It the fourth Selective SF, in the Semi-Finals, and in the Finals, the sequence of performances is determined via Captain's Contest conducted by the Chairperson in the very beginning of the SF. The winner of the Captain's Contest determines the roles of all Teams in the Stage I and thus the sequence of performances in the whole SF. The Captain does not interact with their Team during the Captain's Contest and when deciding on the sequence of performances.

5. Only one Team Member takes to the floor as Reporter, Opponent or Reviewer on behalf of their Teams. All other Team Members may work as assistants, offer technical support to the presenter, pass handwritten notes and if allowed by the Chairperson can make short remarks.

6. In the course of the SF the Members of a Team communicate only with each other. They have no right to use mobile data transfer and other technical means to communicate with anyone outside their Team, in particular Team Leaders.

7. Prior to announcing their Grades, Jurors have no right to express their judgment or opinion. Jurors have no right to explicitly examine textbook knowledge of Team Members and pose the same question to several teams at once.

8. Before the Jurors show their Grades, the Chairperson checks that each Juror has filled and signed their individual protocol and has clearly recorded their Grades. In case of any discrepancy between the protocol and the displayed Grade, the protocol is considered correct.

9. Chairperson and Team Captains can ask any Juror to justify any of their Grades, in particular the extreme Grades.

10. If a Team does not show up for a SF, the Chairperson reports to the GC. The GC establishes the whereabouts of the Team and may resolve to conduct the SF without the absent Team as a two-team SF. If the Group in question is

planned as a two-team SF, the GC may introduce a one-time amendment in the distribution of Teams, upon the discretion of the GC.

II. Standard Stage regulations

1. Each SF is composed of three of two Stages which are composed of separate Phases according to the agenda in the table below. In a two-team SF, each Stage begins with one of the Teams dividing into two independent sub-teams, of which one acts as Opponent and other acts as a Reviewer. Asterisk (*) denotes the positions where Standard Stage regulations should be amended for particular types of SFs.

#	Phase	Duration
1*	**Challenge***	2 min
2*	**Preparation** of the Reporter*	3 min
3	**Presentation** of the report	8 min
4	**Clarifying** questions of the Opponent to the Reporter	3 min
5	**Preparation** of the Opponent	3 min
6	**The Opponent** takes the floor	4 min
7	**Discussion** between the Opponent and the Reporter	5 min
8	**Clarifying questions** of the Reviewer to the Reporter and the Opponent	2 min
9	**Preparation** of the Reviewer	2 min
10	**The Reviewer** takes the floor	3 min
11	**Concluding remarks** of the Opponent	1 min
12	**Concluding remarks** of the Reporter	1 min
13	**Clarifying questions** of the Jury to the speakers	5 min
14	**The grading**	4 min
15	**Concluding remarks** of the Jury	4 min
16	**Break**	10 min
Total for one Stage (no break incl., appx.)		**50 min**
Total for a three-team SF with 2 breaks (appx.)		**3 h**
Total for a two-team SF with 1 break (appx.)		**2 h**

* 1. In the Selective SF with additional problems, the consecutive challenge by all Teams is carried out in the beginning of the SF. The order of challenges is determined by Captain's Contest, and 10 minutes are allowed for the challenge procedure. In the Final SF the challenge procedure is omitted.

* 2. In the SF with additional problems, the preparation time is used by all Teams for solving the problem. The preparation time is 45 minutes.

2. The Chairperson must rigorously keep the time limits for each Phase.

III. Team roles in the Stage

1. The Reporter presents an original solution prepared by their Team. The Report contains the basic ideas and methods for the solution, the description of observations and experiments, theoretical analysis, and also clear conclusions. The Reporter must explicitly cite the sources of any ideas, data or theories which are not of own work. The standard visual aids for the report are multimedia slides with graphs, figures, data, mathematical expressions, photos, or videos. Other visual aids may include experimental demonstrations or handout sheets. By the end of the IYNT, the Reporter submits a copy of their solution (i.e. slides or written reports) to the GC for archiving, and must ensure that the files are safely kept.

2. The Opponent presents a critique of the Report, including its contents and form, and leads the discussion with the Reporter. The Opponent justifies their agreement or disagreement with the methods, results, and conclusions presented by the Reporter. The Opponent challenges each aspect of the Report and discusses possible improvements. The Opponent points to inaccuracies and errors in the understanding of the problem and in the solution, but also points to achievements and strong sides of the Report. Whilst the Opposition must focus on the Report only and may not be a presentation of their own solution, the Opponent can cite literature and own results to justify particular criticisms. By the end of the IYNT, the Opponent submits a copy of their opposition (e.g. slides or written notes) to the GC for archiving, and must ensure that the files are safely kept.

3. The Reviewer summarizes and assesses the outcome of the debate between the Reporter and the Opponent, and draws weighted and independent conclusions. The Reviewer presents a short evaluation of the performances of two other teams, pointing to their strong sides and shortcomings. As the Reviewer does not select the reviewed problem, he or she thus expresses their critical third-party view on the essential points raised in the debate and concludes this debate. Whilst the Review must focus on the performance of two other Teams only and may not be a presentation of another solution, the Reviewer can cite literature and own results to justify particular opinions. By the end of the IYNT,

the Reviewer submits a copy of their review (e.g. slides or written notes) to the GC for archiving, and must ensure that the files are safely kept.

IV. Limitations on Team Members to take the floor

1. During any single SF (Selective, Semi-Final or Final) any Team Member may take the floor only once.

2. Throughout all SFs taken together, except for the Finals, any Team Member may take the floor in each role only once, i.e. once as Reporter, plus once as Opponent, plus once as Reviewer.

3. In the Final SF, there are no limitations related to earlier performances of individual Team Members. Any of them can however take the floor only once.

4. Penalties are applied if these limitations are not respected.

V. Rules of challenge and rejection

1. All problems presented in one SF in one Group must be different. This rule has no exceptions.

2. In all SFs, except for the Finals, the Opponent can challenge the Reporter on any problem available for such a SF, except for those problems that:
  a. the Reporter has previously reported (in earlier SFs);
  b. the Opponent has previously reported;
  c. the Reporter has previously opposed;
  d. the Opponent has previously opposed.

3. The Reporter can reject the challenge. Such a rejection is recorded in the protocol. In such case, the Opponent makes a new challenge.

4. It is allowed for the Opponent to make a new challenge on the problem that has been previously rejected by the Reporter. If the Reporter rejects, this is not counted as an additional rejected challenge.

5. In a situation that no problems are left for a challenge, the restrictions in the p. 2 are lifted in the following order: first d., then c., then b., then a.

6. Throughout all SFs, the total allowed number of rejected challenges not incurring a penalty is **three**.

7. Penalties are applied to the Reporter for rejecting a challenge if the Reporter has exceeded the allowed number of rejected challenges.

Chapter 3. Grading, Penalties and Results

The rounds of the IYNT lead to the official ranking of the IYNT. In the graded rounds the performance of the Teams undergoes a comparative evaluation by the Jury. The grading reflects whether the Team is successful in their performance.

I. Preliminary Ranking (*R0*)

Participants of the IYNT can submit solutions of several problems from the set of main problems to the Jury ahead of the competition. National bodies can furthermore submit the results earned by the Teams at preceding national rounds. The resulting Preliminary Ranking (*R0*) can be made public before the drawing lots and is considered only for the drawing lots to allow for a better distribution of Teams. Participation in the Ranking *R0* is voluntary.

II. Grading parameters

1. Grades (*G*)
Each Juror evaluates the Team performance by giving integer Grades *G*. In any SF, the Grades are in the following range:
  To the Reporter in a SF   from 1 to 30;
  To the Opponent   from 1 to 20;
  To the Reviewer   from 1 to 10.
In the Opening Ceremony, the Introduction of Teams is graded in the range from 1 to 10.

2. Average Point (*P*)
The Average Point for any performance is calculated in the following manner. Two extreme Grades, one maximum and one minimum, are replaced with one grade equal to their arithmetic mean. In the next step, the Average Point P is determined as the arithmetic mean of the new data set of $N-1$ grades. Any Average Point is rounded to 0.01 point.

3. Sum of Points (*SP*)

The Sum of Points for the Introduction of Teams at the Opening Ceremony is equal to the Average Point earned. The Sum of Points in a SF is equal to the arithmetic sum of all the Average Points for the Team in all performances in the said SF. Any resulting Sum of Points is rounded to 0.01 point.

4. Total Sum of Points (*TSP*)

The value of *TSP* is equal to the sum of all *SP*s for the Team during all completed SFs and the Introduction of the Team. The resulting value is calculated after each SF and rounded to 0.1 point.

5. Criterion of Victory (*V*)

For the Team winning in a SF with the Sum of Points equal to SP_{max}, the Criterion of Victory is set to $V=1$. For the Teams which are not winners of the SF but have $SP \geq SP_{max}-2$, $V=1$. For the Teams which have $SP_{max}-10 \leq SP < SP_{max}-2$, $V=0.5$. For the Teams which have $SP < SP_{max}-10$, $V=0$.

6. Sum of Victories (*SV*)

The parameter *SV* of a Team equals the arithmetic sum of Criteria *V* in all completed SFs.

7. Ranking (*R*)

The Ranking *R* for a Team has values from 1 to *N*, where *N* is total number of Teams in the IYNT. It indicates the position of the Team in the list of all Teams sorted descending. The value of *R* for all *N* Teams is calculated only after the completion of the third Selective SF. The best Ranking (*R*=1) assigned to the Team that has the highest Sum of Victories (*SV*) at the end of all preceding rounds. In case of equal *SV* for two or several Teams, their Ranking is determined via comparison of other grading parameters in the following order:

   Total Sum of Points (*TSP*) after all preceding rounds;
   the sum of Average Points for all Reports in all preceding SFs;
   the sum of Average Points for all Oppositions in all preceding SFs;
   the Average Point for one single best Report in the preceding SFs;
   the Average Point for one single best Opposition in the preceding SFs.

If the listed criteria are not sufficient to unambiguously resolve the ranking of the Teams, the GC introduces additional criteria allowing determination of a univocal ranking.

III. Penalties

1. Yellow cards and Summing of the penalties

Penalties during a SF are applied only to the *SP* earned during the said SF. A yellow card is used to indicate each penalty. A yellow card issued to a Team reduces the *SP* in this SF by 10%; two yellow cards issued to a Team during a SF reduce the *SP* by 20%; three yellow cards reduce the *SP* by 30%, etc. The penalties for various violations are applied independently and sum up.

2. Number of rejected challenges (*NR*)

If the total number of rejected challenges in all (the current and all preceding) SFs exceeds the limit (three rejections) by one, a yellow card is issued; if it exceeds the limit by two, two yellow cards are issued, etc. If there is no rejected challenge in a particular SF, the SP in this SF is not penalized even if the total number of rejections in preceding SFs has exceeded the limit. Repeated rejection (if a challenge on the same problem has been rejected by the Team previously) incurs no penalty.

3. Number of individual performances in one Science Fight (*NP*)

Any individual Team Member is allowed to take the floor only once during a SF. If the Team Member takes the floor in two roles, one yellow card is issued; if the Team Member takes the floor in three roles, two yellow cards are issued.

4. Number of individual performances in Selective and Semi-Final Science Fights (*NT*)

Throughout all SFs taken together, except for the Finals, any individual Team Member is allowed being Reporter only once; plus being Opponent only once; plus being Reviewer only once. Each violation results in one yellow card.

5. Duration of one performance (*DP*)

If the duration of Team performance during their Introduction at the Opening Ceremony exceeds the time limit (3 minutes), each extra minute results in one yellow card. The extra time is rounded up to next minute. There are no penalties for exceeding the time allowed for presentations at the SFs where time is under control of the Chairperson who must stop the Phase when the time is up.

IV. Results

1. The current values of Grading parameters for the Teams (with penalties applied) are published as a table after each SF:

   SP, Sum of Points for the most recent completed SF or all preceding SFs;
   TSP, Total Sum of Points;

SV, Sum of Victories;

R, Ranking (from the third Selective SF onwards.)

2. The following grading parameters are assigned to the Team that has not taken part in a SF: $SP=0$, $V=0$.

Chapter 4. Distribution of Teams among Groups

I. Selective Science Fights

1. For the three first Selective SFs, the distribution of Teams among the Groups and the order of performances are determined by the lot. The lots are drawn at the Opening Ceremony.

2. The scheme for drawing lots is made public prior to the procedure. The procedure aims at such a distribution of Teams among the Groups that the following criteria are respected when possible:

        no two Teams meet more than once throughout all Selective SFs,

        each Team changes Groups as many times as possible,

        the Teams having the highest Ranking *R0* do not meet each other in the Selective SFs.

Below is given an exemplary distribution of 18 Teams, where the numbers indicate the Team index received in the lots. This and similar schemes aim at allowing each Team to be Reporters in all three possible Stages: Stage I, Stage II, and Stage III. The order of Teams in each Group determines the order of performances in the Stage I.

SF	Groups																	
	A			B			C			D			E			F		
SF 1	1	7	13	2	8	14	3	9	15	4	10	16	5	11	17	6	12	18
SF 2	9	16	6	10	17	1	11	18	2	12	13	3	7	14	4	8	15	5
SF 3	18	5	10	13	6	11	14	1	12	15	2	7	16	3	8	17	4	9

3. In the fourth Selective SF, the Teams are distributed among the Groups according to their Ranking *R*. Below is given an exemplary distribution of 18 Teams, where the index indicates the Ranking *R* of the Teams after the third Selective SF. This and similar schemes aim at separating top Teams from each other, such that they compete in different Groups. From the fourth Selective SF onwards, the order of performances is determined by the Captain's Contest.

SF	Groups																	
	A			B			C			D			E			F		
SF 4	16	9	4	17	8	5	18	7	6	13	12	1	14	11	2	15	10	3

II. Semi-Final and Final Science Fights

1. If the total number of Teams is over 11, nine Teams having the best Ranking *R* after the completion of Selective SF are allowed to the Semi-Finals. The distribution of the Teams among the Groups of Semi-Final SF is then given by the table below, where the least number corresponds to the best Ranking *R*. The order of performances is determined by the Captain's Contest.

Semi-Final Groups								
A			B			C		
7	6	1	8	5	2	9	4	3

2. Only one Team from each of the three Semi-Final Groups is allowed to the Final SF. If there is more than one Team with *V*=1 in the Group, only the Team with the best Ranking *R* is allowed to the Finals.

3. If the total number of Teams is between 8 and 11, then six Teams having the best Ranking *R* after the completion of Selective SFs are allowed to the Semi-Finals in two Groups. The distribution of Teams among the Groups is given the table below. Based on their results in the Semi-Final SF, three Teams are allowed to the Finals.

Semi-Final Groups					
A			B		
5	4	1	6	3	2

4. If the total number of Teams is less than eight, the Semi-Finals are not carried out and the three Teams with the best Ranking *R* are allowed to the Finals.

5. Within one hour after the announcement of the Finalists, the Finalists select the problems for their reports from the set of the main IYNT problems. Priority in the choice is determined by the Ranking *R*. The list of selected problems is made public.

Chapter 5. Winners

I. Diplomas and Medals

1. Each Team Member and each Team Leader of the winning Teams receive an own Medal and an own Diploma. Official Diplomas of the IYNT must be signed by at least two Members of the GC.

2. The Team winning in the Final SF is awarded 1st place Diplomas and Gold Medals of the IYNT. In case more than one team in the Final SF has a *SP* that differs from the winning *SP* by no more than 2 points, such Teams are awarded 1st place Diplomas and Gold Medals but only one Team is declared Absolute Winner of the IYNT.

3. Other Teams participating in the Finals are awarded 2nd place Diplomas and Silver Medals of the IYNT.

4. All other Teams participating in the Semi-Final SFs are awarded 3rd place Diplomas and Bronze Medals of the IYNT. If the Semi-Finals are omitted in a case of less than eight Teams in the competition, 3rd place Diplomas are awarded to two Teams with the best Ranking *R* that do not pass to the Finals.

II. Certificates

All other Team Members and Team Leaders receive certificates of participation for their Teams.

Chapter 6. Status of the Regulations

I. Authority, Authorship and Application

These Regulations supercede and replace any and all prior Regulations of the IYNT released by the GC of the IYNT and other Bodies in the past. By releasing these Regulations, the GC abrogates in particular the Regulations of the IYNT 2014 released in 2014. The Regulations are developed by Evgeny Yunosov. Contributions are made by Ilya Martchenko.

II. Effective date

These Regulations are adopted and take effect on February 25, 2015.

III. Future amendments

These Regulations are adopted and approved by the GC and can be amended or edited only by the GC. Unless a future GC decision abrogates these Regulations, they remain in force indefinitely.

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