CHINA CLIPPER
Education Program

SFO MUSEUM

China Clipper
An Educational Program for Grade Two and Grade Three Students

This is a free, hands-on educational program designed for second grade and third grade students centered on the current exhibition *China Clipper*. The program includes directed looking, exploring the history of trans-Pacific air service, and hands-on activities to learn about the basic principles of powered flight with making and flying paper airplanes.

The program is guided by experienced museum and library staff and runs 45 minutes. Additional activities are also available. Please see the California Department of Education Content Standards on page 4 for the subject areas that are addressed in this program.

China Clipper can accommodate up to approximately 30 students at a time. Special arrangements can be made for groups larger than 30.
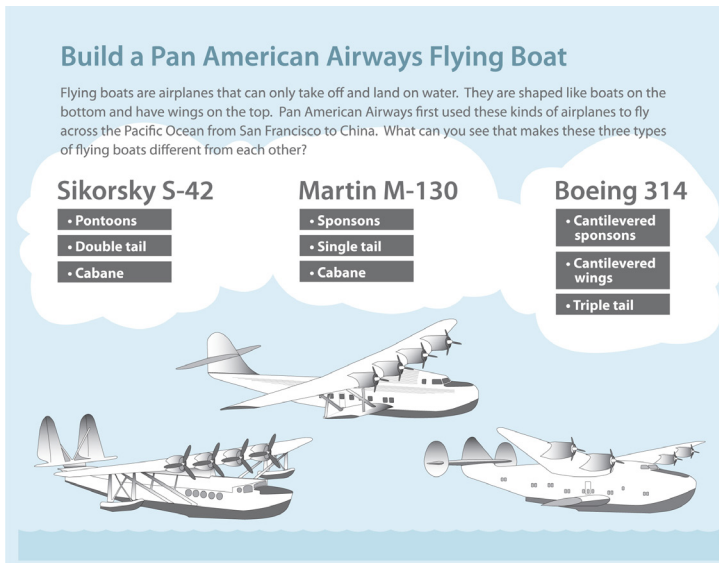
PROGRAM PLAN

Schedule:

- Students arrive at the aviation museum and library and deposit bags, jackets, etc.

- Staff introductions, welcoming remarks, and description of the two planned activities.

- Students are divided into two groups.

  - One group will do the *BUILD IT! ACTIVITY* and *MAP IT! ACTIVITY* through an exploration of the *China Clipper* exhibition.

  - One group will do the *FLY IT! ACTIVITY* by discussing how airplanes fly and then making and flying paper airplanes.

- Allow 15–20 minutes for each group's activity, then groups will switch activities.

- Conclusion and wrap-up.

Additional guided museum activities and airport tours are also available to extend class visits as described on page 5.

BUILD IT! ACTIVITY

Build a Pan American Airways Flying Boat

Flying boats are airplanes that can only take off and land on water. They are shaped like boats on the bottom and have wings on the top. Pan American Airways first used these kinds of airplanes to fly across the Pacific Ocean from San Francisco to China. What can you see that makes these three types of flying boats different from each other?

Sikorsky S-42
- Pontoons
- Double tail
- Cabane

Martin M-130
- Sponsons
- Single tail
- Cabane

Boeing 314
- Cantilevered sponsons
- Cantilevered wings
- Triple tail

Objectives:

- Learn about evolution of long-distance airplanes
- Look closely at the different types of airplanes on display
- Compare the different features of the airplanes
- Examine how flying boat and other airplane designs have evolved through time and what that means for air travel then and now

Above is the board used to lead a discussion about the different flying boats used by Pan American Airways.

Students are directed to look at and examine the three types of flying boats used by Pan American Airways. Students are given different parts of each airplane to assemble each flying boat on the board. The group explores and discusses flying boat design evolution previously discussed through questioning and directed looking. The group will then discuss the routes of flying boats, as established by the first trans-Pacific route by Pan American Airways in 1935.

MAP IT! ACTIVITY

Objectives:

- Learn about evolution of long-distance airplanes
- Look closely at the different types of airplanes on display and discuss
- Compare the different features of the airplanes
- Examine how airplane designs have changed and evolved through time; how they are similar and how they are different

Traveling Across the Pacific Ocean

Seventy-five years ago, it took twenty days to travel the 8,900 miles from San Francisco to China on a ship. On a flying boat, it only took six days. There were five stops on islands along the way where flying boat passengers would spend the night in hotels, and then take off again in the morning. Let's move the ship and the flying boat across the Pacific Ocean to see the difference in how far they can travel each day.

Above is the board used to lead a discussion about the trans-Pacific route of Pan American Airways' flying boats.

FLY IT! ACTIVITY

Objectives:
- • Understand the basic principles of how an airplane flies
- • Learn about the different ways an airplane can move: pitch, roll, and yaw
- • Make a paper airplane and test fly it

Students learn about the basic principles of how an airplane flies using a simple wing section and models. Students demonstrate the pitch, roll, and yaw movements of an airplane with their bodies. Each student makes a paper airplane and then test flies it. Older students can measure results.

Example of a paper airplane pattern for the *FLY IT! ACTIVITY*
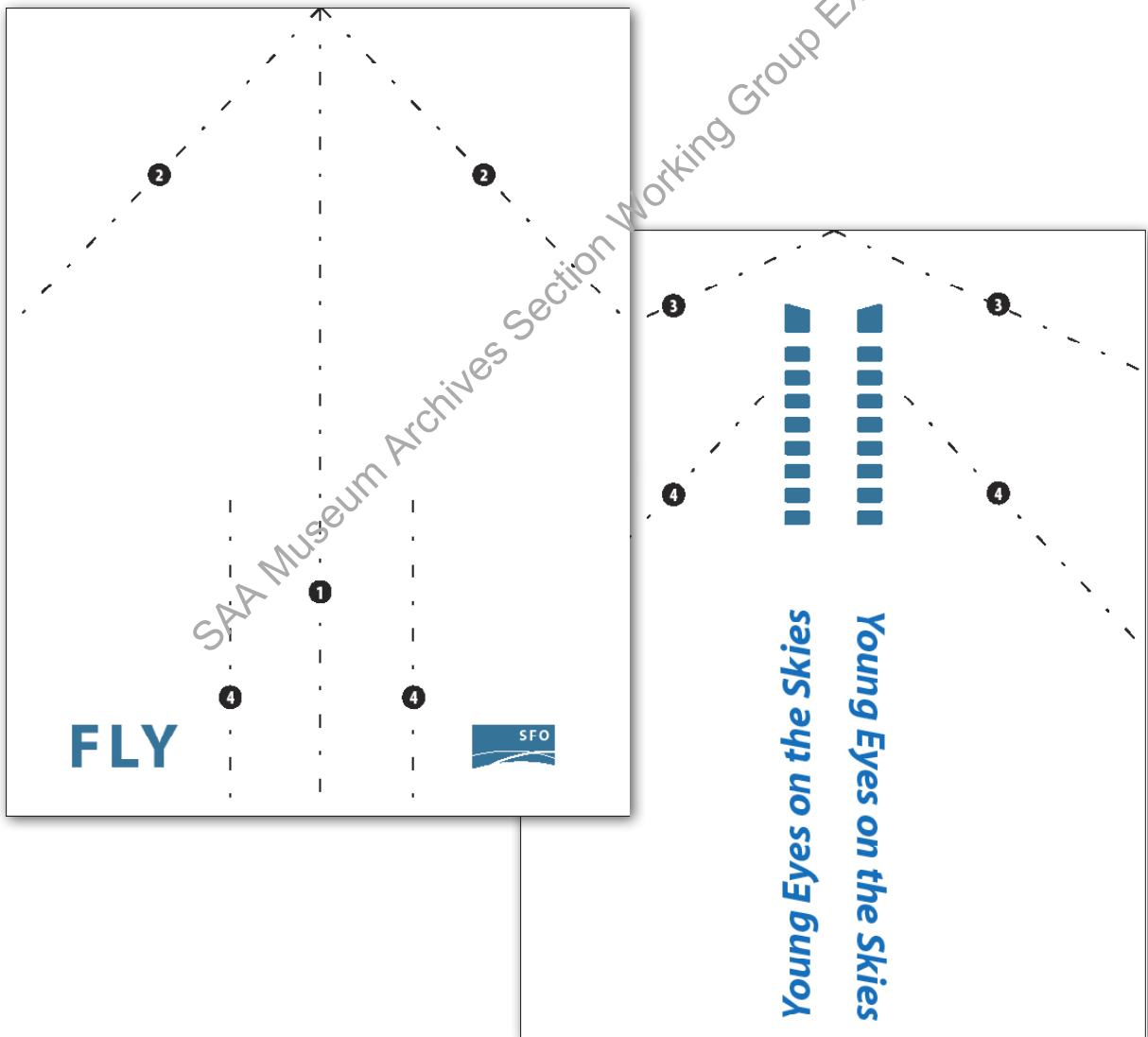
China Clipper relates to the following California Department of Education content standards:

Grade Two

History / Social Studies:
2.1   Students differentiate between things that happened long ago and things that happened yesterday.
    2.2.2   Compare and contrast their daily lives with those of their parents, grandparents, and/or guardians.
2.5   Students understand the importance of individual action and character and explain how heroes from long ago and the recent past have made a difference in others' lives.

Physical Sciences:
1.   The motion of objects can be observed and measured. As a basis for understanding this concept:
    c.   Students know the way to change how something is moving is by giving it a push or a pull. The size of the change is related to the strength, or the amount of force, of the push or pull.
    d.   Students know tools and machines are used to apply pushes and pulls (forces) to make things move.
    e.   Students know objects fall to the ground unless something holds them up.

Grade Three

History/Social Studies:
3.3   Students draw from historical and community resources to organize the sequence of local historical events and describe how each period of settlement left its mark on the land.

Mathematics:
Measurement and Geometry
1.0   Students choose and use appropriate units and measurement tools to quantify the properties of objects.

YOUR VISIT TO SFO MUSEUM

SFO is a great destination for your class!

- Museum and library admission, educational programs, and tours are all free.
- Educational programs and tours can be customized for higher grades, mixed ages, and special needs students.

YOU CAN EXTEND YOUR VISIT

- Bring your lunch and sit in the public dining areas adjacent to the aviation museum, or select from the many restaurants at SFO.
- Take a tour of the airport and ride the AirTrain (by prior arrangement and availability).
- Meet the trained service dogs of the SFPD Airport K-9 Unit and see them in action (by prior arrangement and availability).
- Visit other museum exhibitions at SFO. (Schedules are subject to change, please check **www.flysfo.com/museum/exhibitions** for updated information).

TRANSPORTATION

- Take Public Transportation:
  Take BART directly into SFO International Terminal, where the aviation museum and library are located.
  Take SamTrans Routes KX and 292 directly to SFO.
  Take Caltrain to BART for service to SFO.

- By School Bus/Charter Bus:
  Parking for buses is available at no charge by prior arrangement only.

- By Car:
  Groups booked for educational programs can park in Airport garages and Airport parking tickets can be validated at the aviation museum at no charge.

- Go to **www.flysfo.com** for more information on transportation to SFO.

- Go to **www.flysfo.com/museum/aviation-museum-library/hours-directions** for the location of the aviation museum and library.
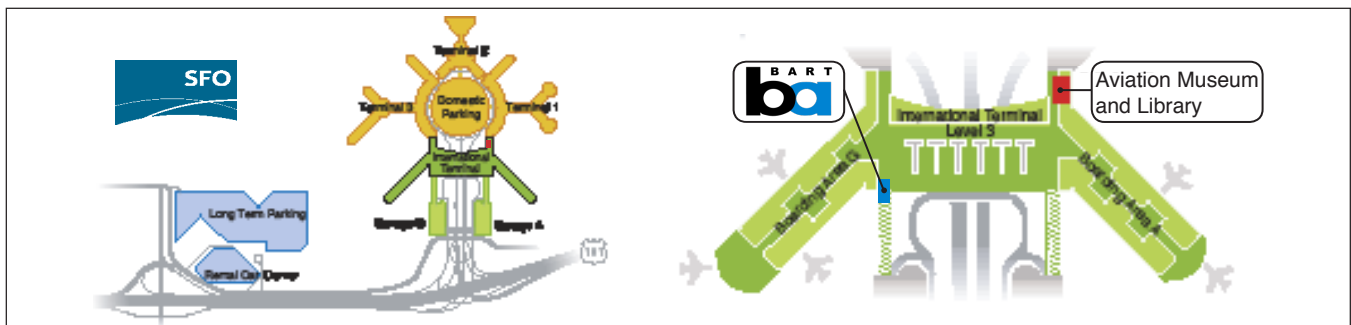
THE AVIATION MUSEUM AND LIBRARY AT SFO

The San Francisco Airport Commission Aviation Library and Louis A. Turpen Aviation Museum opened in December 2000 as part of SFO Museum. Museum visitors and library patrons of all ages can discover and learn about the history of air travel and the role that commercial aviation plays in our everyday lives.

SFOM
1937 Passenger Lobby

The aviation museum and library is housed within an architectural adaptation of San Francisco's original 1937 airport passenger lobby. The permanent collection focuses on the history of commercial aviation with an emphasis on the West Coast and the Pacific region. Museum exhibitions and research services in the library and archives are offered free to the public. Educational programs are held in this unique facility, which is also available for private events. Open daily 10:00 A.M. to 4:30 P.M., and closed holidays, it is located pre-security and admission is free.

Gabriel Branbury
Aviation Museum and Library

SFOM
Pan American World Airways Globe
1939

The *China Clipper* exhibition presents the history of the world's first regularly scheduled transoceanic commercial air service in heavier-than-air aircraft, which began November 22, 1935, on San Francisco Bay. Pan American Airways built bases at Hawai'i, Midway Island, Wake Island, Guam, and Manila to establish this pioneering route. In overcoming the many geographical and technological challenges faced in the formative years of long-range over-water transport flying, the airline laid a a foundation for the international global air system of today.
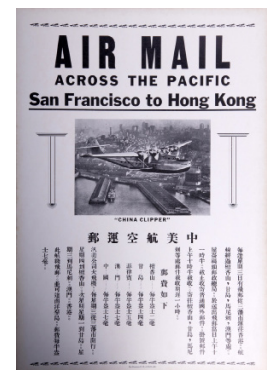
SFOM
Pacific airmail service poster
1937

TO SCHEDULE EDUCATIONAL PROGRAMS AND TOURS, CONTACT:

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Check **www.flysfo.com/museum/programs/education-programs** for future programs.